The Journal of the American Medical Association

VOL. XXXIII CHICAGO, ILLINOIS, JULY 15, 1899. No. 3

Original Articles.

BEST METHODS IN THE TREATMENT OF APPENDICITIS.*

THEIR SOCIOLOGIC BEARING.

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It seems strange when accurate knowledge is so easily accessible on the subject of appendicitis, that bad methods in the management of the disease still persist. I will briefly review some of these, and approximately in the order of their importance.

The worst method is that which treats the patients by various medical means. Many of these recover without further attacks, many die and a larger number have recurrent attacks and suffer more or less invalidism for months or for years. It is impossible to determine in advance which course will be followed by any one case. That is always determined afterward. Consequently the cases that are going to recover without further attacks, recover; the ones that are going to get into dangerous complications, get into dangerous complications; the ones that are going to have recurrent attacks, have recurrent attacks, under medical treatment. There is no way for determining in advance what the eventual outcome of any case will be. The death-rate under proper surgical treatment in the first stages of an attack is a fraction of 1 per cent. The death-rate under medical treatment of any sort has not been shown to be less than 25 per cent., consequently the rational deduction is that the conservative treatment of these cases is the one which avoids speculation and arrives at a definite and satisfactory conclusion early in the history of the case.

Next after medical treatment comes various bad methods of surgical treatment which have a special death-rate of their own. Methods of surgical treatment which have a death-rate of their own are here briefly enumerated:

Iodoform Gauze Packing.—This is harmful in two ways. The peritoneum absorbs iodoform with such rapidity that toxic effects are produced in some patients from a very small quantity of the drug. If we examine the urine of patients who are thought to be dying from septicemia or exhaustion, and who have iodoform gauze in the peritoneal cavity, the result will surprise those of us who have not made such examinations. A little urine stirred up with a pinch of calomel in a saucer will show the brownish reaction, as iodid of mercury is formed in cases in which the urine contains iodin. A marked peculiarity of these cases of death from iodoform poisoning is the good appearance of the wound itself.

Gauze Packing.—Gauze packing without iodoform stands close to iodoform gauze packing in the order of injurious resources which have a special death-rate of their own. Strong and well men cannot bear in the abdominal cavity the presence of a half yard of gauze, and I do not know why a weak and exhausted patient should be asked to bear what cannot be borne by a strong man. Aside from the shock caused by gauze packing, the gauze causes excessive lymph exudation. This causes a rich culture-medium for bacteria, and further, it forms strong and troublesome adhesions of viscera. When gauze packing is removed, it causes so much distress that surgeons sometimes anesthetize the patient when the dressing is changed. Gauze packing often causes post-operative obstruction and ileus by its direct mechanical effect, as does also the drain in the form of strips of gauze which are carried to various points among viscera for drainage, when peristalsis of the bowel causes the drainage strips to encircle bowel loops. It is impossible to guard well against post-operative ventral hernia in any case in which gauze packing or multiple gauze strips have been employed. Gauze packing or gauze strips are not only harmful but they are unnecessary and may be entirely replaced by a narrow drainage wick covered with guttapercha tissue, which avoids adhesion formation to the mesh of the wick. The narrow wick allows the wound to be closed and accurately sutured. It must be managed with a knowledge of the mechanical principles involved in dealing with capillarity.

Extensive and Multiple Incisions.—The necessity for making an incision four inches in length should rarely ever occur in any case of appendicitis. Multiple incisions are unnecessary. The short incision of 1½ inches in length for interval cases or primary infection cases before abscess has developed, is all-sufficient for surgeons who have given themselves opportunities for training in adhesion work, in most of the cases. In cases with abscess and wide-spread infection, an incision three inches in length is usually sufficient. The idea that all parts of the peritoneal cavity should be reached by the surgeon in cases of wide-spread infection, is erroneous and based on ordinary ideas of cleanliness, and not on a knowledge of what the peritoneum is able to accomplish. In chief toxin-bearing collections of fluid are quickly evacuated, and the appendix removed; if the patient is not kept under an anesthetic for a long time; if the bowels are properly managed afterward, we need give little attention to the remainder of the septic fluid which is distributed about in the peritoneal cavity. There is a hyperleucocytosis already well established in almost every case with wide-spread infection, and the polynuclear leucocytes make easy work of removing the infected material left in the peritoneal cavity.

Protracted Operation.—Almost any operation for appendicitis, no matter how extensive the complications, should be completed in less than thirty minutes from the time of beginning operation. Operations which drag along to an hour or more, perhaps with much unnecessary handling of viscera, long exposure of the open wound and long-continued anesthesia, leave the patient in an unfavorable condition for rallying quickly from the operation.

Leaving Adherent Appendices.—A method which must have a special death-rate of its own consists in leaving infected appendices among adhesions. Such appendices are frequently gangrenous in part and they often

*Presented to the Section on Surgery and Anatomy at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6-9, 1899.

contain concretions and mucous inclusions. It is rarely ever necessary to leave such adherent appendices after one has become trained in adhesion work.

Protecting the Peritoneum.—"Guarding the peritoneum" is a method which may not have a large death-rate of its own, but which certainly causes delay in operative work. It consists in carefully walling off an abscess with gauze, especially arranged to protect the peritoneum. This requires a larger incision than is necessary and also the expenditure of time. It is based on conventional ideas of cleanliness rather than on present knowledge. It is much better to work rapidly through a small incision, let pus flow as fast and as freely as it will anywhere over the peritoneum and blow it out with hydrogen dioxid from time to time as the work proceeds. In the *N. Y. Medical Journal,* for April 29, 1899, I published a list of seventy-six consecutive cases of the most dangerous class of appendicitis, that had gone on to the stage of general suppurative peritonitis, septic peritonitis with liquefied lymph instead of abscess formation, multiple acute, single acute, and old abscesses, and managed by the principles briefly outlined above, with only eight deaths. I have operated on a very much larger number of cases in the interval, with various adhesion complications, and primary infection cases before abscess formation, and have not as yet had a death in this class of cases. Most of them were operated on through the inch and a half incision.

Bad methods in the treatment of the subject of appendicitis are quite as important as bad methods in the treatment of appendicitis. It is difficult for one to cut a clear path through the tangle of ignorance on the subject, and those of us who are doing it for the rest of the profession get little credit and have to content ourselves with the *mens conscia recti.* I believe that personally this work costs me thousands of dollars annually, and it makes enemies of men whom I would wish to call my friends. I would gladly drop the subject out of my field of discussion in surgical society meetings, but there is yet a moral demand for all of the voices that can be raised for the right, while thousands of patients are unnecessarily dying every year from appendicitis, and still more thousands are suffering the wreck of health and ambition and are disabled in the race of life for which they have equipped themselves. The greatest wrong is done to society by writers and speakers on the subject who have not taken the opportunities that are easily available for becoming properly informed, and who have little hesitation about expressing crude and dangerous opinions. I shall take this occasion for quoting some examples of such harmful and injurious influence. It seems necessary in order to do this to make direct criticism of the men who furnish such examples of bad influence. It is my custom, based on principle, to avoid criticism of my colleagues excepting at medical society meetings where there is fair opportunity for defense. All of the men who have been selected for this group of criticisms and who are living in this country have been notified by letter of my intentions, and all have been asked to be present or to have some representative at this meeting, to make such answer as may seem proper.

Example A.—In the December, 1898, number of *Health Culture,* Dr. S. R. Beckwith has an article opposing the operative treatment of appendicitis. On reference to "Polk's Medical Directory," I find that Dr. Beckwith was formerly surgeon to all the railroads entering Cleveland, Ohio; that he is a member of the Ohio State Homeopathic Medical Society, American Institute of Homeopathy and New Jersey State Homeopathic Society. In this article in question Dr. Beckwith says the reader may ask why he exposes the error of operation for appendicitis in a lay journal instead of choosing a medical journal for the purpose, and his answer is, that in medicine and in surgery improvements have come mostly from the people. Blood-letting he quotes as an instance of a method that was wiped out of existence by the people, and he proposes to direct his writings against operation in appendicitis to health journals.

Here are some quotations from the article in *Health Culture:* "The appendix is a hollow tube from four to six inches in length. The lower end of the tube is attached to the small intestine, passes through the internal and middle coats of the small intestine, and is attached to the inner fibers of a valve that guards the entrance between the small and large intestines." The function of the appendix he says is to work this valve, so that unprepared matters shall not escape too soon into the large intestine. Here appears a cut furnished by Dr. Beckwith in illustration of his anatomic position of the appendix.

FIGURE 2.

Just below this valve the small intestine enters into the large one as shown at No. 5 in Figure 2. The valvular movement so accommodates itself that foreign substances, as where a child swallows a penny, readily pass into the large intestine. Number 4 in Figure 2 represents the vermiform appendix. It is a hollow tube from four to six inches in length: the lower end of the tube is attached to the small intestine, passes through the internal and middle coat of this, and is attached to the inner fibers of the valve.

Dr. Beckwith says that the appendix occurs in all mammalia, and is remarkably well developed in the hog. Any one who questions his anatomy can easily verify it by dissecting a hog, and he will make humble apology to any one who finds on such dissection that he is wrong, provided that a photograph of the dissection be sent him for examination. Dr. Beckwith says that appendicitis is extremely rare. "In more than fifty years of surgical practice" (graduated in 1853, according to "Polk's Directory") he has seen but two cases of the disease. Surgeons of larger experience have never seen a case. This author says that in the operation the entire appendix cannot be removed without producing death, the valve motion would cease at once if this were done, and death would as certainly follow as in an unrelieved case of strangulated hernia. All that modern surgeons do, and here is where they practice deception, is to snip off a portion of the tail of the appendix; the portion which remains becomes modified, so that it can still operate the valve. Dr. Beckwith's article is made up of columns of this sort of statement and his conclusions from time to time are against the modern idea of operation.

Articles of this sort, when read by medical men are harmless, because it is apparent that the author is not mentally responsible for what he says. But we must con-

sider that this article was published in a lay journal where it was presumably read by thousands of the laity, and its conclusions might have readily been the means of bringing misery into more than one household, because of the average lay reader's trust in an article which gives anatomic details, and which is signed by a physician. The editors of *Health Culture* are culpable in the matter of publishing such an article, but there is no means provided whereby they can be punished for this imposition on the people. They do the harm and innocent people are made to suffer.

Example B.—In the JOURNAL for April 8, 1899, Dr. Wilbur F. Sterman has an article on the "Medical and Surgical Treatment of Appendicitis." The author refers to a previous communication of his that was published in the JOURNAL for Dec. 18, 1897, advocating medical treatment, and he states that it was very favorably commented on by Dr. Haughton and others. Dr. Haughton's article, which many of us remember, consisted of conclusions based on cases treated medically, in which typically bad results were obtained, and no better warning against medical treatment could well have been published than this prop which Dr. Sterman quotes for supporting his side of the case. To show Dr. Sterman's honesty of intention, however, I quote from his article: "The constant aim of every member of the medical profession should be the welfare of humanity at large, and the greatest good to the greatest number." That certainly shows a sufficiently broad type of mind and it is too bad that Dr. Sterman has not learned that medical treatment is not the sort which carries out his intention toward the public. He is probably situated in an environment in which it is difficult to make a proper selection of authorities and to know the real difference between proper surgical treatment and medical treatment of any sort in appendicitis. Like many others in his position he fails to take into account the known pathology of appendicitis, and instead of being guided by the principles based on pathology, he depends chiefly on limited personal experience, and bad authority. He quotes from Ewald: "It is also shown by statistics that from 90 per cent. to 91 per cent. of all diseases of the appendix taken in their broadest sense recover without operation." Men like Ewald are responsible for leading physicians like Dr. Sterman astray. I have forgotten which Dr. Ewald it was who made this statement, as there are several surgeons of that name in Germany, but he has no such statistics as Dr. Sterman quotes. The reason why he has no such statistics is because patients with concretions in the appendix, with mucus inclusions, with tuberculosis of the appendix, with chronic abscess, and with adhesion complications, are not cured after the subsidence of acute attacks, and when these patients drop out at intervals in various subsequent attacks and complications they are not recorded for percentage statistics. The statement that such statistics are available is false and this Ewald disgraces German medicine. I would respectfully request German authorities to look after such careless unscientific writers, if they wish to preserve the fair name of Germany in the interests of pure science.

Dr. Sterman quotes again from an article by Treves, as he says, but I suspect that he is quoting from memory and consequently will not hold Treves responsible for the following quotation: "Concerning appendicitis obliterans and chronic recurrent appendicitis, even these cases do not invariably require operation. In some examples of the relapsing form much can be done by medical treatment. In the recurrent type, if operation is to be considered at all, it might be well to take the risk of waiting for another attack which may never come. In the chronic relapsing cases, however, if the surgeon deciding upon operation limits himself to the following indications he had better take advantage of the interval. (The words in italics interpolated in the text are mine.) Operation is indicated when: 1. The attacks have been very numerous. *Patients die in the first or second or any attack without furnishing symptoms for prognosis.* 2. The attacks are increasing in severity and frequency. *What they are doing is decided after death or recovery and not before death or recovery.* 3. The last attack has been so severe as to place the patient's life in considerable danger. *We know how to avoid such unnecessary risk and suffering on the part of the patient.* 4. The constant relapses have reduced the patient to a condition of chronic invalidism, and rendered him unfit to follow any occupation." *Horrible!* Would Dr. Sterman have us believe that English surgeons allow their bankers and their barristers, their sons and daughters and mothers and brothers to get into such predicament as is here depicted? If it were true, I would say shame on any member of our profession to-day, no matter who he is or where he lives, who allows an appendicitis patient to become a chronic invalid provided he is in a position to enjoy enlightened resources. Concerning the matter of waiting for the interval in order to have a safe operation, I would like to ask if that represents courage on the surgeon's part, or does not the word "safe" refer chiefly to the surgeon's reputation? If all patients would get to the safe interval, we would never need to operate to save life in appendicitis.

Dr. Sterman further says: "Thus from all other true and eminent sources of authority such as these, comes the warning note of conservatism in behalf of judgment and good sense." He apparently has not learned that appendicitis is not the disease to give opportunities for exercise of judgment and common sense. He evidently is not familar with the statistics of the operation, or he would not speak of conservative treatment as that which has the largest death-rate.

Dr. Sterman then reports on two patients of his own who were subjected to medical treatment, both of whom recovered from acute attacks, but with much more suffering and delay than would have occurred under proper surgical treatment, and further than that, both of his patients must be expected to go through the same ordeal again at no distant day, we hope safely. This prognosis of their having to go through the same ordeal again is based on our common knowledge of the nature of the disease, and its familiar pathology. Dr. Sterman thinks that the patients will not have further trouble. Why does he think so? It is only a physician's hope. All of us who are sympathetic know what that is. We are prone to deceive ourselves in hoping good things for our patients, and patients die because we hope instead of applying principles.

Example C.—The *Medical Record*, Dec. 17, 1898, contains an article by Dr. T. J. Hutton of Chicago, entitled "A Cheap Cure for Appendicitis." Under the title are published statements of the doctor's standing: "Formerly Resident Physician Long Island College Hospital, Brooklyn, Brigham Hall Private Hospital, Canandaigua, N. Y., Burn Brae Private Hospital, Philadelphia, Professor of Diseases of the Mind and Nervous System in the College of Physicians and Surgeons in Chicago." Dr. Hutton's treatment consisted chiefly in the free use of calomel and soda purgation, supplemented by hot applications, these to be followed by salines if the

action of the calomel was too slow. He stated that enormous quantities of calomel could be given with impunity in cases of appendicitis with obstruction of the bowels. He stated that he could recall 100 cases with the symptoms of typhlitis, and perityphlitis, that he had treated, but never yet had he seen one that did not recover under that treatment. I immediately wrote the Doctor at his Chicago address, asking him for detailed history of any ten consecutive cases of the list, if he could furnish them. The letter was returned to me in New York, postmarked on the envelope "moved, left no address." The following number of the *Medical Record* contained a statement from the secretary of the College of Physicians and Surgeons of Chicago, stating that Dr. T. J. Hutton was not a professor in that college nor was he in any way connected with it. It was apparently a case of fraud throughout. And yet from the fact that the article was published in a medical journal of the standing of the *Medical Record,* and because the author subscribed himself as a professor in the College of Physicians and Surgeons of Chicago, the article must have done great harm, because it was in line with the ideas of a very large number of men who have not yet acquired principles that are to be applied in the management of appendicitis.

Example D.—Early last year, Dr. M. O. Terry of Utica published a statement to the effect that he had cured forty-nine out of fifty-one cases of appendicitis, by medical means with a so-called oil treatment that he had previously advocated with much confidence. If these cases were in reality appendicitis cases, there must have been among them the usual proportion of concretions, of mucus inclusions, of tuberculosis, of chronic abscess and adhesion complications. The proportion of cases in which these things occur has been carefully worked out and published in a series of tables in the third edition of my book on the subject, and the data taken from actual observation of specimens must be taken into account whenever a physician speaks of medical cure of appendicitis. Knowing that Dr. Terry's number of patients could not be cured after the subsidence of acute symptoms when they still carried concretions, mucus inclusions, tuberculosis, chronic abscess, and peritoneal adhesions, I asked for a more detailed report on the cases, but it has been impossible to obtain such a report. Dr. Terry's excuse was that it was difficult to find out what became of the cases, and my argument is that he should not have published a report on cases that he could not find out about. I offered to pay all expenses of men employed by Dr. Terry or by myself, as he wished, in order to trace the history of his forty-nine cases, but I have not been enabled to obtain information about that. Our correspondence on the subject will be found in the files of the *N. Y. Medical Times* for 1898. It is of considerable interest and worthy of perusal by all who are at work on the subject of appendicitis. Finding that I could not get a report on the forty-nine cases said to have been cured, I asked Dr. Terry to report on ten consecutive cases. He finally gave, in the *Medical Times,* a report on ten cases, but these appeared not to be consecutive cases, and there was nothing to show that the methods for making a correct diagnosis had been employed, and no statement of interval palpitation finding and nothing excepting a statement that most of the patients considered themselves cured. Consequently we are left without any foothold for guidance in placing a calculation on the data that Dr. Terry furnished. I have had occasion to operate on several patients who had undergone Dr. Terry's oil treatment. By hearsay I have learned of the expected proportion of deaths and exacerbations in patients who had undergone this form of treatment at the hands of Dr. Terry, and of others who stated that they had followed his methods, and it is much to be regretted that Dr. Terry cannot be persuaded to apply scientific methods in making a report for us. I do not wish to infer that it is his intention to be dishonest in the matter; his reports simply indicate a lack of scientific training and an unwillingness to learn the real facts about his cases because of his confidence in a method of treatment that he is advocating. Much suffering results in consequence of his writings because others who are too busy to acquire a knowledge of the real pathology and the real statistics of appendicitis, depend on such reports for guidance.

Example E.—Apropos of the publication of one series of 100 consecutive unselected appendicitis operations of my own with a death-rate of 2 per cent., Dr. E. C. Savidge of New York wrote, in the *Medical Record* of Dec. 12, 1896, commenting on this paper, in connection with the statistics of certain European operators who had furnished creditable statistics in other fields of work. I quote from Dr. Savidge's letter in the *Record,* as follows: "The statistics of Morris when compared with surgeons who have a 10 per cent. or 20 per cent. mortality prove logically that he is five or ten times more skilful than they. The figures of Pean and Jacobs logically prove that they have five or ten times more individual art than the principal surgeons at the New York hospitals. But does anybody who knows the whole ground believe these logical deductions? Suppose that surgeons with fancy statistics meet a dozen desperate cases in their respective lines, each with one bare operative chance in a hundred, would these gentlemen have regard for their statistics and refuse the patient the one poor chance by operation, or would they rule out from their statistics these practically moribund cases? In such event, where the operators may be soberness and truth itself, their figures are vainglorious cheats as tests of comparative skill." This is an example of one of the most harmful types of writers who would bar progress, because it represents the communistic spirit carried into a liberal profession. Intolerance of merit is common enough, but this usually works itself out in petty revenge in private, and there are few who are bold enough to publicly write as Dr. Savidge did, and divert the attention of the profession from the real point at stake, the data of progress. Dr. Savidge turns my utilitarian intention into a crime, for I consider that publication of misleading surgical statistics is a crime if the surgeon's position is such that others depend on him for guidance in choosing methods of procedure. My statistics were not published for the purpose of showing any superior skill on my part, in fact I had not anticipated any such strange reading of the report. They were published for the benefit of surgeons, to show what could be accomplished by following certain surgical principles that had been elaborated in the texts accompanying these statstics. I had not "refused help to any moribund patient," but had operated in every acute appendicitis case that I had seen, with the exception of two patients who were dead when I arrived, and 20 per cent. death-rate in these 100 cases would have been quite legitimate. There were thirty-eight cases with abscess or worse complications, and most of the 100 had adhesion complications. The object of the report was to show why the death-rate was 2 per cent. instead of 20 per cent. and to show it in such a way that the report would be of

value to surgeons. Dr. Savidge diverted my effort and placed me in a contemptible position on the basis of the report, because to a high-minded, conscientious physician nothing seems more contemptible than refusing help to a suffering patient in order to advance any selfish interests of one's own.

Example F.—At the Denver meeting of the AMERICAN MEDICAL ASSOCIATION, Dr. W. W. Keen of Philadelphia was reported to have said in one of the discussions, "I protest against the statement that we can obtain a surgical death-rate of only 2 per cent. in appendicitis. I challenge any operator in this room to take 100 well persons and operate upon them without losing more than 2 per cent." On reading the report, my natural impression was that Dr. Keen had been misquoted, but on inquiry it was learned that the report was correct. This is an example of the most harmful type of obstruction to progress, because of the importance of its author. Concerning a death-rate of 2 per cent. in operations on well people, Drs. Bull and Coley have published in the *Annals of Surgery* a report on over 8000 hernia operations at the hands of several operators with a death-rate of a fraction of 1 per cent. Dr. Coley informs me that he has operated on over six hundred hernia cases with the loss of only one patient. Concerning the death-rate of 2 per cent. in appendicitis operations, Dr. M. M. Johnson and I have each recently published a list of 100 consecutive unselected appendicitis operations with a death-rate of only 2 per cent., and if we wished to make a report on selected cases, omitting abscess and septic peritonitis cases, we could show a death-rate of nil up to date.

Dr. Keen then was wrong, but let us consider for a moment how much more important a matter it is for Dr. Keen to be wrong than for Dr. S. R. Beckwith, for example, to be wrong. Most patriotic members of the profession like to believe that there are as truly great men in our profession as in any other profession to-day. We like to believe that there are no greater surgeons than American surgeons. According to human experience, greatness implies the possession of constructive motives, nobility of purpose, catholicity of view, erudition. It means caution in assertion that is not based on knowledge. When a man has arrived at Dr. Keen's position in the profession, it is our natural tendency to group him among our great men, and so much weight is given to his expressions of opinion that he quickly adds a strong bar to progress in any direction when he discredits advance work without having given attention to the subject. If the argument is made that he was not discrediting advance work, but was simply dissuading members of the audience from expecting such statistics at their own hands, then he was in the position of a teacher of law who argues that legal principles are not to be taught the class because so many members will fail to carry them out in practice. The reports on 2 per cent. death-rate statistics in appendicitis surgery had been made for the purpose of sustaining the principles of treatment that gave such statistics.

In closing, it is no more than right to express a feeling of pride in the results that have been accomplished in appendicitis work by many American surgeons. Let us take for comparison, a showing from France, a report on appendicitis in the French army, by Chauvel, in the *Bulletin de L'Academie de Medecine* for January, 1899. A study of cases of appendicitis in the French army during the last three years, 171 in number, shows that 83 were treated medically and 88 operated on. Medical treatment had a mortality of 4 per cent among those treated before the fourth day, 37.8 per cent. among those treated from the fourth to the eleventh day and over 50 per cent. of those whose affection was not diagnosticated and treated until after the eleventh day. Surgical treatment had a mortality rate of 42 per cent. among those operated on in the first five days, 30 per cent. among those operated on from the fifth to the tenth day. There were two deaths among those who were operated on in the interval. Another point that will amaze American surgeons in these statistics is the fact that the mortality among cases in which the surgeon removed the appendix amounts to 7 out of 18 cases, while in 56 cases in which the operation was restricted to opening abscesses and draining, there were 16 deaths. I make no comments in this grewsome and horrible display, except to say that the way is known for making the death-rate in appendicitis in the French army less than 2 per cent. as soon as the French surgeons choose to adopt methods which give a trifling death-rate. From English reports I am unable to obtain statistics that would not reflect on individual surgeons and this I do not choose to do. Suffice it to say that England is to-day very far in the rear of enlightened management of appendicitis. Germany, which has led the world in medicine and in surgery for many years, shows that in the peculiar field of appendicitis work, methods commonly employed are not representative of German science.

The discussion following this and other papers on appendicitis, read at the same time, will be published at the completion of the series, which will be in about two weeks.

EMPYEMA OF ANTRUM.*

BY HENRY G. OHLS, M.D.

CHICAGO.

From a time at least as early as the meeting of Eneas and Dido, caverns—antra—have been the abiding places of mystery and romance. From a perusal of the literature one might even suspect that the same terms would apply to much that has been written about the antrum. The increased attention given diseases of the nares and the accessory cavities has greatly increased the number of cases recognized within the last two decades. Lennox Browne[1] states that no cases were diagnosed during his association with Sir Morrell Mackenzie, 1866-73. Post-mortem investigation[2] now brings to light numerous cases not recognized during life.

Anatomy.—Let us refer briefly to the anatomy of the antrum, merely noting its vulnerable points and those peculiarities that give to inflammation of this cavity its peculiar characteristics. It is a closed cavity, except for the ostium maxillare, which is located about 2 to 2.5 cm. above the floor, and opens into the lower part of the hiatus semilunaris, which is often a continuation of the infundibulum in the form of a half tube, according to Fillebrown[3]. The relations between the frontal sinus, the infundibulum, hiatus and ostium maxillare are well shown in the excellent plates by Howard A. Lathrop[4] in the Warren Triennial Prize Essay for 1898. The outer border of the floor is often marked by prominences corresponding to the projecting palatal roots of the first and second molars, and less often of the second bicuspid and third molar. The bone covering the roots is often very thin, as is also the inner wall just posterior to and a little below the hiatus. Indeed, the bone is often lacking in the latter location. The infraorbital nerve and the anterior and posterior dental nerves run through canals in the walls of the antrum; 16 per cent. of antra are divided more or less completely by bone septa in

* Read before the Chicago Laryngological and Climatological Society, May 20, 1899.

various directions, according to Eugene S. Talbot[5]. M. Boulay[6] points out, in addition to these divisions, the diverticula that often extend toward the canines, inward, or into the zygoma. The mucous membrane is somewhat thicker than in the other sinuses, and is provided with more glands. The early development of the antrum, about the fourth fetal month, is also a matter of interest. The size, shape and relations between the antra and the nasal cavaties and the palatal arch vary exceedingly. (Zuckerkandl[7]).

Age and Sex of Subjects.—Gottlieb Kicer[8], from a study of 200 post-mortems made without regard to the cause of death, including 89 males and 106 females, found a total of 88 empyemas, of which 39 affected the antrum. Of the latter, 1 occurred between the ages of 10 and 20 years; 13 between 20 and 40; 16 between 40 and 60; 9 between 60 and 80. D'Arcy Power[9] reports an empyema in a child, and Alex Douglas[10] saw a case in a 3-weeks-old infant. M. Rudaux[11] reports a case in a 3-months-old child, due to the eruption of a tooth into the floor of the antrum. St. Clair Thompson[12] attributes these cases to acute osteomyelitis of the maxilla, while George Avelli[13] attributes them to tubercular disease. Lennox Browne[14] thinks the possibility of empyema occurring at a very early age is evident on account of the early development of this sinus as compared with the other sinuses.

Etiolgy.—Diseases of Teeth: It is a matter of historic interest at least that the only clearly discerned cause of empyema was until a comparatively recent period, caries of the teeth, and the teeth will certainly always demand attention in diagnosis and treatment. But that this is even the principal cause of empyema is more than questionable, though it will require more statistics to gain an exact idea of the relative importance of different pathologic processes. Kicer[8], in a study of 68 cases found the cause was dental disease in 65 per cent. F. Berger[15], Ingals[16], Wm. Carr[17], and Geo. W. Major[18] attribute a majority of these cases to a dental origin

R. C. Myles[19] and C. W. Richardson[2] found the teeth and the nose equally responsible. Lennox Browne[21] found dental caries seldom the cause of acute sinusitis and less often the cause of chronic empyema than was formerly believed. Bosworth[22] inclines to a similar view, while at the same time taking exception to Zuckerkandl's[23] theory that most empyemas were due to an extension of the inflammatory process from the nares. As bearing on the relation between diseased teeth and empyemas, the observations of E. S. Talbot[5] are interesting but not conclusive as to the proportion of empyemas caused by dental disease. In 6,000 antra he found 1,274 abscessed molars, of which 76, or 6 per cent., extended into and discharged into the antrum. Of 384 pulpless teeth, 4 were accompanied by empyema.

The Ostium Maxillare.—The antrum is no less vulnerable from the direction of the ostium maxillare. From the relation between the ostium and the infundibulum above described it is evident that in many cases the antrum receives the drainage from the frontal sinus and the anterior ethmoidal cells. When that secretion happens to be purulent or loaded with pathogenic bacteria, autoinfection ensues. The antrum is subject in short to all the pathologic processes affecting the nasal mucous membrane, though Bosworth[20] is undoubtedly correct in the statement that there is rarely direct extension of diseased conditions from the nares into the antrum. Possibly atrophic rhinitis might be considered an exception.

Necrosis in the middle meatus may cause empyema either by direct infection or by obstruction to the ostium. The principal nasal factor in empyema is doubtless obstruction of the ostium whether that be due to acute rhinitis, hypertrophic rhinitis, influenza, septal or turbinal deformity, polypi or other tumors, foreign bodies, including tampons or traumatism, including cauterization and other operations. Of constitutional causes may be mentioned the exanthems, erysipelas, mineral poisons, syphilis and tuberculosis. Major[18], Watson[24], Ingals[23] recognized that polypi often caused empyema, but did not consider them the principal cause, as did Bosworth[26]. H. I. Jones[27] found that epidemic influenza was followed by a large increase in the number of empyemas. Saint Hilaire[28] saw two cases of empyema induced by plugging the nares to control epistaxis. H. V. Würdemann described an empyema of the maxillary, ethmoid and sphenoidal sinuses with general septicemia following an attempted removal of the inferior turbinated. Henry L. Wagner[29] treated a case of seropurulent sinusitis of three years' duration due to lead poisoning.

Pathology.—Without attempting to consider all the pathologic conditions that may be encountered in the antrum it will be sufficient for the present to divide the subject as follows: 1. Acute catarrhal sinusitis, *a*, with patent ostium, *b*, with closed ostium. 2. Subacute sinusitis (do). 3. Chronic sinusitis (do). The chronic form has been further classified by Lennox Browne[30] as 1, catarrhal or mucous; 2, serous or dropsical; 3, purulent; 4, cystic.

Dundas Grant[31] and Lennox Browne[32] adopted, from Lermoyez, the following classification of the signs of latent empyema that certainly leaves little to be desired:

Presumptive: Unilateral discharge, intermittent discharge, infraorbital pain, subjective fetor, upper molar caries, pus in middle meatus, mucous polypi, lateral swelling of cheek.

Probable: Return of discharge on bending forward or to opposite side, opacity on transillumination.

Certain: Puncture and transufflation, puncture and irrigation, puncture and aspiration—1, inferior meatus; 2, alveolus; 3, canine fossa; 4, middle meatus—catheterization, inflation, irrigation.

ACUTE CATARRHAL SINUSITIS WITH PATENT OSTIUM.

Symptoms.—This condition usually develops during the course of an acute rhinitis or more especially in connection with an acute exacerbation of a chronic or hypertrophic rhinitis. The subjective symptoms are discharge, mucous at first, which changes rapidly into a thin canary-colored purulent fluid, often excessive in amount, that runs freely from the nostril or passes into the nasopharynx. The patient often experiences an unpleasant odor that is not apparent to others. The discharge in many cases continues free for a week or more, then diminishes and ceases in from two to three weeks. Pain is not marked but there is usually a sensation of slight pressure over the region of the antrum and some tenderness on pressure over the cheek and brow. There is malaise, slight fever and loss of appetite, sometimes constipation and insomnia—from the annoyance due to the excessive discharge. On inspection the discharge can be seen in the middle meatus or dripping from the middle of the outer border of the middle turbinate. There is usually some hypertrophy or more often an intumescent condition of the turbinates. The diagnosis is easily made and the prognosis favorable as indicated above. It is rarely continued as a chronic disease.

Treatment—The patency of the ostium should be carefully maintained by applications of cocain made by the physician, or a small amount of powdered sugar of milk containing 4 per cent. of cocain may be intrusted to

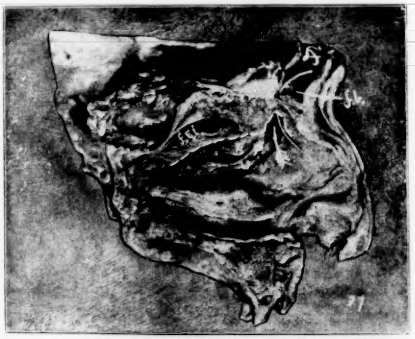
the patient with directions to insufflate a few grains of the powder three times a day if the nose is stopped. Ingals'[33] formula, as follows, is an excellent preparation for this purpose:

Sodii bicarb.	gr. i	065
Sodii biborate	gr. i	065
Mag. carb. levis	gr. iii	20
Saccb. lact. q. s. ad	gr. c	6 50
Cocain mur.	gr. iv	26

M. ft. pulv.

Mild antiseptic douches followed by oily sprays will add much to the patient's comfort. In some cases the swelling of the tissues is reduced for several hours by the application of a solution of adrenals. In other cases I have used it without effect. To reduce the engorgement of the membranes I would recommend a trial of the injection of hot air into the nares, as used by E. L. Vansant[34] for the relief of frontal headache, as he had previously[35] applied it to the ear in the dry treatment of otorrhea. Internally tonic doses of nux and quinin are indicated, and usually the discharge is favorably affected by the administration of belladonna and camphor.

Plate 37.—Reproduced from "Annals of Surgery," by courtesy of Dr. H. A. Lothrop, Boston.



Left nasal fossa, external wall, turbinate bone removed. Probe from turbinate fossa to frontal sinus. Arrow is lost in infundibulum under septum between bulla ethmoidalis and uncinate process. Lower portion of hiatus semilunaris obstructed by a small polyp (*p*) which hangs from the ethmoid bulla (*B*).

f.e.b. Fissura ethmoidalis inferior. *F.* Frontal sinus. *f.b.* Frontal bulla.

ACUTE CATARRHAL SINUSITIS WITH OSTIUM CLOSED.

When the catarrhal inflammation of the antral mucous membrane is excessive and swelling of the soft tissues about the orifice impedes the free exit of secretions, there is an immediate change in the symptoms. With closure of the orifice there is absorption of air and usually rapid increase and decomposition of the secretions. Halasz[36] describes a mild serous form with occasional closure of the ostium. Frohann[37] also described a similar condition characterized by pain on pressure over the antrum and toothache occurring in sound teeth early in the morning without constitutional disturbance. The typical case presents a rapid aggravation of symptoms. Pressure on the walls of the antrum increases. Pain becomes the prominent symptom. Usually there is supraorbital pain, and intense neuralgia of any or all the branches of the trigeminus may follow. The tenderness on pressure over the antrum becomes more pronounced, and the sharp neuralgic pain may be varied by the sensation of a red-hot wire along the course of the nerve. The pain varies in intensity, but there is an almost constant throbbing with frightful paroxysms. There is tenderness of the molars on percussion, even when sound. Redness and swelling of the cheek are rarely if ever present when the inflammation is confined to the interior of the antrum. On inspection the naris may be free from excessive discharge, but the soft tissues will be found swollen and there may usually be found some further cause of obstruction, as deflection or enchondroma of the septum or polypi. Howard A. Lothrop's[38] plate number 37 shows a very small polyp blocking the lower part of the hiatus.

Diagnosis.—As pain is such a prominent symptom and often involving the dental nerves, with no discharge to draw attention to the sinus, the condition of the teeth at once demands our attention. Tapping the upper teeth with a steel instrument will determine the probability of the antrum beng filled by the lack of resonance[39]. If pulpless molars or bicuspids are present, the root canals should be opened. If a palatal root abscess is found, the canal should be enlarged for drainage and treated antiseptically. If drainage is insufficient, or the symptoms too urgent to permit an attempt to save the tooth, it should be extracted and a free opening made into the antrum. the thin plate of bone being probably carious but not allowing sufficient drainage. If, on the other hand, the teeth are sound, we may resort to transillumination of the antrum, for, whatever may be said as to the fallibility of this measure, it is a diagnostic resource of the highest value in this condition. It must be remembered, however, that abnormal thickness of the bone walls of the antrum will make a shadow and that the inflammatory thickening of the lining membrane will maintain opacity for some time after the fluid products of inflammation are removed.

Scheppegrell [40] has epitomized the indications obtained by different authors as follow: 1. Opacity of cheek, Voltolini—Heryng. 2. Opacity of pupil, Davidson. 3. Absence of luminous sensation, Garel. 4. Lamp under maxillary sinus, not nasal fossa, Ruault. 5. Opacity of nasal wall observed by rhinoscopy, Robertson.

In a case of acute sinusitis, at least in which the disease of the teeth has been eliminated and transillumination gives positive evidence of opacity as shown in Myles' excellent plate[41], I should feel that the diagnosis was quite certain. To confirm the diagnosis and at the same time to relieve the condition an effort should now be made by application of cocain solution to so contract and anesthetize the membrane about the hiatus that probing the ostium may be practiced. To facilitate this procedure it may be necessary to remove polypi about the hiatus. Continental operators[42] often resect the anterior part of the middle turbinate to gain additional space for passing the probe. Our patients do not often consent to such an operation for our convenience. If probing is practicable, the antrum may be irrigated through the opening or hydrogen peroxid may be injected, a method attributed by Lennox Browne[42] to his namesake, our distinguished confrère. Keeping the ostium open and irrigating with mild antiseptic solutions ought within a few weeks to produce a cure in the case of simple catarrhal inflammation described. I do not describe the subacute form as being merely a transitional stage. If the symptoms continue over six weeks, we may consider the case has assumed the characteristics of chronic empyema. Probably a large majority of cases never pass through the acute stage above described, but are so mild from the beginning that they are never di-

agnosed unless an acute exacerbation intervenes, especially when occurring with polypi or other conditions that maintain discharge. As we found acute catarrhal sinusitis due usually to acute infection or the result of acute rhinitis, the chronic form is usually associated with some of the more chronic nasal diseases mentioned under etiology. The symptoms of chronic empyema are marked by variability rather than by intensity, being often quiescent for long periods. The periods of increased discharge have often been diagnosed as recurring influenza —Lennox Browne.[43] An offensive odor may be the only symptom, as in Bronner's case. Long-continued suppuration with pus passing into the stomach is frequently the cause of serious impairment of the health either through dyspepsia and anemia or through sepsis from absorption; if, then, a few weeks' treatment by irrigating the antrum through the ostium fails to bring about a cessation of discharge, the question of surgical interference must be decided. There are many who puncture the antrum as a routine means of diagnosis. Charles Lucius[45] says puncture only is pathognomonic. C. H. Knight[46] warns against exploratory puncture and relates a case in which puncture on three days in succession only revealed pus on the third day, the inference being that if pus was present at first the puncture was inefficient, while if it was not present the puncture probably infected the antrum. Puncture may be performed either in the middle or lower meatus. The middle meatus below and posterior to the hiatus offers the least resistance as the bony wall is very thin or often lacking at that point, but it is much less accessible in the average case. Geo. E. Shambaugh[47] describes the method of puncturing with a curved needle directed downward and outward to avoid wounding the orbit. For drainage and after-treatment by irrigation the lower meatus offers obvious advantages. Lichtwitz' or Krause's trocar or drills of various kinds may be used, a moderate opening being sufficient for the diagnosis of the presence of fluid. Cohen's drill with canula is one of the best devices. Zeim[48] prefers Cooper's opening through the palatal border of the alveolus followed by irrigation by a powerful force-pump.

When at last the diagnosis of empyema is definitely established, either by opening the sinus wall or through the alveolus as above described, the route chosen should be enlarged to an average diameter of about one-quarter inch. In the alveolus an Ingals'[49] double-flanged soft-rubber tube of suitable length may be introduced; or a tube of hard rubber or gold may be fitted and retained if necessary, by attachment to the adjacent teeth. Various devices have been resorted to to prevent food entering the antrum, an occurrence that I have found occurs very infrequently with a tube of moderate size. Mulhall[50] and Meyjes[51] devised tubes with lids or hinges. The danger of improperly constructed tubes slipping completely into the antrum is by no means theoretic, as Cheatle, Dundas Grant and Wm. Hill[31] have recently reported cases. Watson Williams (ibid) reported a peg lost in a similar manner but was fortunate enough to recover it via the ostium maxillare without operation When opening is made in the inferior meatus, a soft-rubber tube may be introduced to prevent too rapid contraction and to facilitate irrigation. Certain cases will recover under irrigation with antiseptics and stimulating applications. Dr. Chas. J. Whalen personally reports peculiarly good results from injections of a solution of 1 to 4 per cent. formaldehyde in water. Few patients like irrigation well enough to continue its use after all discharge ceases, but Law[52] reports a case in which unnecessary irrigation was practiced daily for three years.

There remains for our consideration a class of cases still large, that experience only temporary relief from the measures advocated; and they will try our patience to the utmost unless we clearly recognize the fact that such degenerative changes in the lining membrane of the antrum or such new growths have developed that a radical operation is necessary. I dismiss without consideration the use of the curette through the small opening hitherto described. Myles [53] prefers opening the lower anterior border of the malar ridge, sacrificing a tooth. DeRoaldes and King[54] advocate the Luc operation, cutting away the anterior bone wall of the antrum, perforating the nasal wall and introducing a funnel-shaped soft-rubber tube from the antrum into the lower meatus, curetting all diseased tissues and closing the soft tissues over the defect in the anterior wall. N. Senn[55] makes a temporary osteoplastic resection of the anterior wall, removes the cause of the suppuration, passes a fenestrated drainage-tube into the naris either through the ostium or an opening made into the middle inferior meatus and projecting into the mouth through a defect cut in the bone flap. Howard A. Lothrop[56], in a case of combined suppuration of all the accessory cavities of one side, for which all the teeth had been removed and the canine and alveolar operation had been performed, cut away all the naso-antral wall beneath the lower turbinate.

I will describe only two cases of antrum disease, one a personal experience of mild acute catarrhal sinusitis, the other a typical severe inflammation due to a root abscess and followed by recurring frontal headaches. The personal experience occurred in the spring of 1891. As to the etiology, I had been the subject of hypertrophic rhinitis for several years and rarely passed through a winter without one or more severe coryzas with much swelling of the turbinates. On this occasion, at the beginning of the attack I had no reason to anticipate more than the usual coryza. After a few days, however, the discharge became much freer from the left nostril and was accompanied by a heavy feeling in the left antrum, with some tenderness on pressure. For about a week the discharge was thin, canary-colored and excessive in amount; so excessive in fact that the only way I could sleep was lying on the right side with my head on the edge of the bed with a receptacle beneath to catch the constant drip from the nostril. I noticed a peculiar musty or mousy odor which my companions said they could not detect. From the beginning of the coryza to the cessation of discharge was a period of nearly three weeks. Treatment was limited to mild antiseptic douches and, I think, a mild oily spray. Later I had linear cauterization performed on the hypertrophied turbinate on four occasions, and have been almost entirely free from acute rhinitis, though in wet, cold weather I experience an increase of secretion and dropping into the throat.

The other patient was a young married woman who began having severe pain in the upper teeth April 14, 1895. Her general health was poor, due principally to being five months pregnant. Her teeth, never good, showed a tendency to rapid decay. The dentist removed an old filling from the right upper first molar and made the usual applications to kill the root nerve, without mitigating the pain, which grew more intense. She finally consulted another dentist, who advised extraction, which was performed by Dr. Slonaker under gas anesthesia on April 25. The ache in the side of the face continued, with severe neuralgic pains shooting through the branches of the trigeminus and the facial. May 5, Dr. C. L. Wright removed a filling from the second molar and

found pus in the pulp cavity. May 7 I examined the antrum, at Hinsdale. Finding that my chemical battery would not heat Dr. Ingals' electric lamp, I substituted an ordinary electrode of coiled No. 20 platinum wire protected by a two-dram vial. The right antrum was opaque. The turbinates were moderately swollen but no unusual discharge was detected in the nose. Dr. Slonaker thereupon extracted the second molar under gas, and enlarged the opening into the antrum. Three or four drams of thick pus escaped. The antrum was irrigated through the maxillary opening, the irrigating fluid passing into the naris without the slightest difficulty. Diluted peroxid of hydrogen and a saturated solution of boric acid were used through a bent Eustachian catheter twice a day for two weeks. The opening then becoming contracted, I advised enlarging the opening and introducing a tube. As further operative interference was absolutely refused I devised a tube from an ordinary hard-rubber connector to fit the opening in the bone. It was 3 mm. in diameter and 25 mm. long, with a round collar at the lower end. This allowed free drainage without permitting food to pass into the antrum except on rare occasions. For a few weeks longer the antrum was irrigated daily until the discharge ceased. At no time was there any redness or swelling of the cheek.

The patient has worn the tube to the present time, fearing a repetition of her experience with a closed antrum. She has been subject to occasional severe frontal headaches lasting from one to three days usually following an exposure to cold air. Sleeping in a cold room is sure to be followed by a frontal headache. The lower and middle turbinates of both sides, and submucous swellings on the septum, have been repeatedly cauterized without materially modifying the character or frequency of the headaches. And in spite of the cauterization the turbinates remained puffy. On looking about for an apparatus to apply hot air, as recommended by Vansant[34] I saw a machinist's oil-can with a long nozzle which can be heated without injury over a Bunsen burner or spirit lamp. The hard-rubber tube and nasal tip enables the patient to inhale air as hot as can be borne. The entry of cold air is regulated by inserting a perforated cork in the inlet. The heat can be retained longer by placing pieces of electric light carbon in the can. The patient has only recently used this apparatus but found the hot air very grateful. The pain was relieved in a short time instead of persisting two or three days as formerly.

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DISCUSSION.

DR. W. L. BALLENGER.—There are two points in Dr. Ohls' paper to which I wish to refer: the use of a cautery electrode protected by a two-dram vial as a transillumination lamp; and the liability of improperly selected or applied drainage-tubes to enter the antral cavity. For about four years it has been my custom to use an electrode in the manner described by the essayist for transillumination purposes. I read somewhere of the method and adopted it, with very satisfactory results. I have also used the Heryng lamp and find it adapted to a much greater variety of uses than the electrode lamp.

About two years ago Mrs. B., wife of Dr. B., of a suburban city, consulted me concerning a chronic empyema of the antrum of Highmore. She had been previously treated by her husband and a local rhinologist, who opened the antrum between the first molar and bicuspid. Not having a suitable antral tube a piece of black soft-rubber tubing was used instead. A few weeks later the tube disappeared and it became a question of some importance as to whether the tube had entered the antrum or had been discharged externally. At this stage I was consulted. I attempted to explore the antrum by means of probes and solutions, but did not arrive at a definite result. A few weeks later she consulted me again, and as the discharge had abated considerably, we decided not to enlarge the antral opening as planned, but to continue the treatment by frequent irrigations. Three months later I received a letter from her stating that during a violent attack of sneezing the long lost drainage-tube was expelled through her nose. It had been carried in the antrum for nearly a year. I subsequently did a radical operation, removing the anterior wall of the antrum, and found the cavity filled with edematous granulation tissue. This was removed with a curette and the cavity packed with gauze moistened with the compound tincture of benzoin. I may say, briefly, that the case went on to complete recovery. As I expect to report the case more fully at another time I will not give further details now.

DR. GEO. E. SHAMBAUGH.—I wish to say a word about the use of the term "infundibulum," which we find used in a variety of senses. Sometimes it is applied to the anterior extremity of the hiatus semilunaris, sometimes to the nasal extremity of the nasofrontal duct, which may or may not open into the hiatus semilunaris. Zuckerkandl, who is a good authority on the anatomy of the nose, uses the term "hiatus semilunaris" as applying to the mouth of a depression several millimeters deep which runs its entire length and which he calls the infundibulum. It is in the depth of the infundiblum, therefore, near its posterior end, that the ostium maxillare is found, while the anterior extremity of the infundibulum as a rule opens into the ostium frontalis, which leads into the frontal sinus. The Anatomical Nomenclature Commission, in 1895, gave the term "infundibulum ethmoidalis" to the entire space between the unciform process of the ethmoid and the bulla ethmoidalis.

DR. J. HOLINGER.—Empyema of Highmore's antrum was

considered of rather infrequent occurrence about ten or fifteen years ago. The oftener we look for it, the oftener we find it. At first only the typical forms with large accumulations of pus were diagnosed; catarrhal forms have been recognized only lately. I am thankful to Dr. Ohls, because I learned things that were new to me. I would like to ask whether the etiologic factor, caries of the teeth, is not pushed too much in the foreground? This is the reason why I put this question: Last summer I treated a boy of 15 years whose empyema recurred several times. At each recurrence one or several teeth were extracted, so that he had not one tooth in his upper jaw. Even at the side where he had no empyema not a tooth was left. He was cured after Dr. Oswald and I chiseled away bone plates at the lower and anterior angle. I saw him repeatedly last winter and spring; no recurrence can be found.

DR. O. T. FREER.—In cases where the antrum is divided by septa, into separate compartments, the drill or trocar entering the antrum through the alveolar process or beneath the inferior turbinate body, may penetrate a compartment containing air, while the one filled with pus may not be entered at all. The great pain felt by patients when the alveolar process is being drilled through amounts to acute agony. Dr. Ohls states that Continental operators remove the anterior half of the middle turbinated body in order to gain access to the natural opening of the antrum for the purpose of exploration. From my memory of the literature on the subject of empyema of the accessory sinuses, the middle turbinate is resected chiefly in order to gain access to the frontal sinus, as when the hiatus semilunaris is thus exposed we get an easier approach to the natural opening of the frontal sinus where it enters the infundibulum.

A. M. CORWIN.—My personal experience with empyema of the antrum includes eight or ten cases. In only one of these were polypi present, and I could not decide whether these were the result or the cause of purulent process. Whatever the relation between these conditions, in some cases nasal polypi do not seem to be a frequent cause. In the large number of cases of polypi that occur, how seldom do we find antral disease. One of my cases of some months' duration, in a medical student, was of interest because I succeeded in curing it entirely by making an opening with a small trephine, above the alveolar process in the canine fossa, through which the cavity was washed by mild antiseptics, an ordinary Eustachian catheter being passed. In another case, a dentist had removed a tooth and put in a gold tube and treated the patient for months without recognizing the specific process which was evidently present, as manifested by a gumma of the hard palate and nasal ulceration on the corresponding side. There was profuse purulent discharge from the antrum through the normal opening. The removal of the tube and the granulation which partially filled it and surrounded its upper end, and the simple washing out of the cavity and the exhibition of iodid brought about prompt recovery.

Dr. JOHN A. ROBISON.—I did not notice that Dr. Ohls, gave as one of the causes of empyema of the antrum, malignant disease. I think it should be included, as empyema is often one of the forerunners of carcinoma of the antrum, as was well illustrated in a subject who came under my observation in February. Mr. S., aged 70, consulted me for the purpose of having a diagnosis. He said he had noticed, two months previously, pain in his eyes, more severe in the right eye, which increased in severity day by day. He had been subject to nasal catarrh for some time before, the amount of secretion being great, and the nasal passages closing toward night, the right being worse than the left. For five weeks previous to consulting me the right eye had been congested, the right maxillary bone tender, and the soft tissue of the right cheek swollen. He had been under the constant treatment of a homeopathic physician for ophthalmia, but obtaining no relief, had decided to make a change. An examination revealed the presence of empyema of the antrum, and the signs also pointed quite conclusively to malignant disease being the primary cause. Dr Senn operated by opening and draining the antrum on February 28. There was great relief from the painful symptoms, but notwithstanding a thorough curettage of the cavity, a second operation was necessary on March 11, when a portion of the maxillary bone and the carcinomatous mass were removed. The patient was discharged from the hospital on April 10. Some years ago I saw a case of empyema the result of carcinoma of the antrum, in which the cancer extended to the eye, and there was secondary carcinoma of the liver with ascites. The eye was enucleated and the antrum drained, but the patient later succumbed to systemic infection.

INTESTINAL ANASTOMOSIS.*

BY J. HENRY BARBAT, M.D.

SAN FRANCISCO, CAL.

The question as to which method of intestinal anastomosis is the best is still unsettled; each deviser of a new method claiming his method or device to be superior to all others. Not having any method or device of my own I have endeavored to find out which was the most feasible for the use of the average surgeon; and also to determine which gave the best results. A method which requires extraordinary skill and a large amount of practice to perfect is not a feasible one for the average operator. With regard to results the case is different; we can demonstrate the difference between the results attained by the various methods by removing the specimens and subjecting them to microscopic examination. The ideal result would be the accurate apposition of the respective layers of the intestine without the interposition of any scar tissue; therefore the nearer we approach this ideal the better will be our result.

I have conducted a series of experiments on dogs: confining myself to circular enterorraphy of the small intestine; I adopted this variety of anastomosis because the results better demonstrate the value of the method used, and it is conceded that it is the most difficult to do properly, besides it is the only method which restores the bowel to its natural condition; and is the operation which should always be selected when no contraindications exist.

Before detailing my work allow me to recall to your mind the minute anatomy of the intestine. The intestinal wall consists of four coats, starting on the outside we first have the peritoneum; next to the peritoneum is the layer of longitudinal muscular fiber; on top of this and closely adherent to it we find the circular muscular layer, which is in the small intestine about three times as thick as the previous one. The next coat is the submucosa or fibrous layer and on top of this the mucosa.

These various layers each have a special significance in surgery; the peritoneum is simply a protecting coat and does not stand much strain, especially when inflamed, but is of especial value after injuries by pouring out lymph which prevents leakage and covers over the exposed surfaces. The muscular coats are of no consequence from a surgical standpoint as their function is simply to move the intestinal contents along, and a failure to get union would only cause a break in the peristaltic wave, which would not impair the integrity of the bowel. Muscle tissue after being cut will never repair in such a manner that the muscle cells will cross over the point of division; there will always be a layer of scar tissue between the muscle cells at the point of union. The submucosa is the tough membrane which gives the bowel its strength; it is impervious to gas or liquid and it has been clearly demonstrated by Halsted that it is the only coat which possesses the strength necessary to support the strain of sutures in an enterorraphy. The mucosa is a purely functional layer and is of no importance as far as the strength of the gut is concerned.

It will thus be seen that in order to have a secure anastomosis the peritoneum and submucosa are the only coats which are essential, therefore the method which approximates these coats the earliest must of necessity be the best. Now let us see the result of the various methods immediately after the question and see which one gives the best approximation.

* Based on Experimental Research done in the Medical Department of the University of California.

A careful examination of *all* specimens obtained from suture operations showed the peritoneal coats in apposition—except at the mesenteric attachment—and the other layers in their natural relation, except at the points where the sutures had been passed. At these places the muscularis and mucosa were cut through, allowing the submucosæ to come together with the intervention of the peritoneum only.

Suture—42 days.

In the Murphy button specimens the muscularis and mucosa were pressed out of the way completely so that the peritoneum and submcosa were the only coats left between the jaws of the button around the whole circumference of the gut; even at the point of attachment of the mesentery the peritoneum was infolded so that there was no uncovered surface at any point. With the

Suture—36 days.

Frank coupler the mucosa was pressed out but the muscularis was still intact. These results prove that the Murphy button places the parts in the best relative position for proper union, at the start.

By examining the specimens removed at given intervals we can watch the process of repair and determine the value of the result obtained. We find that the relation of the parts varies but little in any of the suture operations; we have at the point of union a double layer of intestine, with the two peritoneal surfaces in contact and the cut ends of gut projecting into the lumen of the bowel; naturally at the point of mesenteric attachment there are no peritoneal surfaces, and we find here the most accurate apposition of layers that is obtained in suture methods.

Murphy button—63 days.

This is due to the fact that the intestine is not invaginated at this point to the same exent that it is where the bowel is covered by peritoneum, and therefore there is a better chance to bring the corresponding layers in apposition at this point. After a period varying from four to six weeks we find that the mucosa begins to grow over the cut ends and thereby becomes continuous, but the

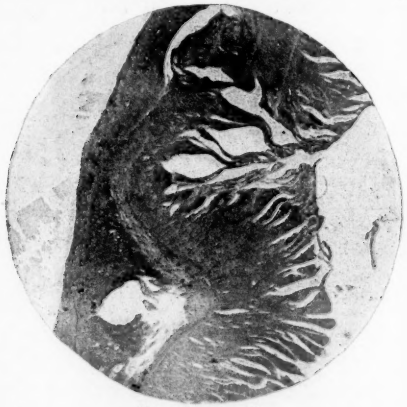
Frank coupler—20 days.

other layers maintain their normal relation except where the sutures have cut through the mucosa and muscularis; at these points we find the peritoneum continuous on the outer surface of the bowel and the submucous layers in contact. But this approximation is only found at the circumference of the intestine where the sutures have

been placed, and there therefore remains a double layer of gut projecting into the bowel with only the peritoneal surfaces in contact. If we follow these cases we will find that the connective tissue which is formed between the approximated surfaces begins to contract and, as the amount of contraction depends on the amount of scar tissue it necessarily follows that with the two comparatively wide surfaces which we get in

Murphy button—36 days.

all suture anastomoses we will have considerable contraction. Moreover, the diaphragm, which is formed by the double layer of intestine, contains circular muscular fibers and we will have a continuous contraction of these fibers within the ring of the bowel. In the Murphy button cases we have a different condition of affairs; immediately after the comple-



Murphy button—57 days.

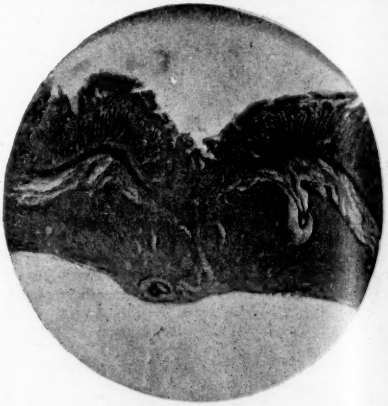
tion of the operation we have the peritoneum and submucosa only at the point of union, i. e., in the bite of the button.

The ends of the intestine, which are within the interior of the button, are held by these layers until the pressure necrosis which takes place liberates the button. After the button has passed, we still have at the point of union nothing but the peritoneum and submucosa; the mucosa is lacking over the line of approximation for a variable distance, usually not more than one-twentieth of an inch, and as I stated, a regeneration begins from four to six weeks after. We find the connective tissue gradually absorbing, except at the submucous layer, allowing the closer approximation of the muscular layers, but never

Suture—99 days. Showing result usually obtained by suture.

disappearing completely or allowing the muscle cells to cross the line of union.

We therefore have in a specimen which has ceased to change, the following arrangement: the peritoneum is continuous and the blood-vessels and lymphatics are seen to cross over from one side to the other; the two muscular layers are in line and in close contact, a layer of con-



Murphy button—36 days.

nective tissue preventing the cells from passing across; the submucosa forms a continuous layer, the direction of the fibers being parallel with those on each side; there is usually a slight thickening at the point of union. The mucosa is completely regenerated, except its muscularis which, like the other, comes in close contact without being continuous. The results obtained with the Frank

coupler are similar to those with the Murphy button. I was unable to obtain any of Chaput's buttons and can not therefore judge of its comparative value. The perfection of the result depends to a considerable extent on the accuracy of the technic, and the character of the intestine that is being operated on, a thin gut giving a very different result from one that is thick or slightly inflamed; this holds good no matter which method of anastomosis is used.

Murphy button—68 days.

With regard to technic, I have been able by suture approximation to obtain results which equalled those obtained by any other method; but this requires considerable practice and there are few men who have the time or opportunity to perfect themselves in this line of work. The method which yielded the best result was as follows: a very fine catgut suture was inserted, beginning at the point of attachment of the mesentery, and passing through all the coats of the bowel, keeping as close to the cut edge as possible. The suture was passed across from one cut edge to the other until it reached a point opposite the beginning; a second suture was begun at the same point as the first and continued around on the other side of the gut till it met the end of the first stitch. The ends are tied, being careful that all knots are within the lumen of the bowel; this accurately approximates the cut edges layer to layer. A superficial stitch is then placed, keeping as close to the line of union as feasible, so as to produce as little invagination as possible; it is essential that the sutures be very accurately placed or we will have leaking.

This method is not as safe as those which turn in a wider portion of bowel, but anatomically it gives the best result of any of the suture methods and equals in some instances that obtained by the use of the Murphy button. The various methods which necessitate the use of cylinders of various substances from potato to rubber, or forceps to hold the cut ends in position during the operation, do not yield any better results, in fact the results are not as good as may be obtained without mechanical assistance. All these devices entail the invagination of too much intestine and therefore there will be more contraction than if we use some other method which does away with this feature.

Murphy button—47 days.

Murphy button—36 days.

The technic to be observed in introducing the Murphy button is as follows: a puckering over-stitch is introduced, beginning at a point opposite the attachment of the mesentery and continued around the cut end of the bowel to the beginning, taking a special stitch through the mesentery. This special stitch is of great importance as it draws the mesentery into the bite of the button and insures against having the uncovered space at this point. The two halves of the button, held in forceps, are introduced and the sutures tied. It is well to place the half which has the spring in last as it is more difficult to hold it in position after its introduction than the other portion. All that now remains to do is to push the two halves together, being careful that the mesentery is in line. Care must be observed in placing the suture to have it close to the cut edge of the intestine, especially if the mucosa is thickened, or it will be found impossible to pull the whole thickness of the bowel into the bite of the button.

With regard to the dangers which have been claimed by the opponents of the Murphy button, I have analyzed them all and find that there are very few real ones. The majority are due to faulty technic, or faulty buttons. In some cases the two halves are not pushed together sufficiently tight to cut off the circulation or to cut through the mucous and muscular coats; in these cases the button may remain as a permanent fixture, with more or less serious effect according to its locality. In two cases which I saw, the silk ligature that was used to draw the bowel over the button was cut so long that it projected out beyond the jaws and prevented its escape; in both cases the buttons were removed and the reason of the failure clearly demonstrated; this disaster may be averted by using catgut instead of silk.

With regard to sloughing and necrosis, I have yet to see a case that was directly due to the presence of the button; in the majority of cases in which this accident has happened we will find that the operator has neglected to provide for the nutrition to the cut end of the gut by cutting on the wrong side of one of the mesenteric vessels, or by including the vessel—which is oftentimes found on the very edge—in the suture which approximates the divided mesentery. This accident happened to me in one of my cases of circular enterorraphy. I was explaining to the gentlemen who were assisting me the necessity of always providing sufficient arterial supply to the cut ends, even if it should be necessary to remove an inch or two more of the bowel, and at the same time committed the error I was warning them against, showing how watchful we should be in this respect.

One thing which has caused many accidents is a defective button, and unfortunately we find the market flooded with poorly constructed buttons. Not all operators are capable of judging whether the button they are about to use is mechanically perfect or not. There are very few buttons in the market which conform in every particular to the requirements we expect to find in a perfectly constructed article. The closed button should be perfectly smooth all over and the drainage holes should not have sharp edges; the largest diameter should be where the two halves came together; the spring must be sufficiently strong to completely cut off the circulation of the ends of the bowel, which are within the button, or else necrosis can not occur and the button will not be passed; this has occurred in many cases. The pressure edges must not be too wide or necrosis will not take place as soon as it should, and a wider ring of scar tissue will be left than if the edges are narrow.

Suture—57 days.

Murphy button—3 days. Showing mucosa and muscularis pressed away at point of union.

The only real danger which I can conceive is the possibility of a button getting caught at the ileocecal valve, and I believe that this is more theoretical than real, because in my experiments on dogs I was obliged, in some cases where the intestines were smaller than the button, to stretch the gut with forceps before it could be introduced. Notwithstanding this all the buttons were passed without any trouble. In a few cases it has happened that the button has fallen into the stomach after gastro-enterostomy has been performed; this can easily be obviated by having the half of the button which goes in the stomach of a little smaller diameter than the other, when it will be impossible to have the button go the wrong way. I have utilized this method by taking two buttons of different sizes and using the male half of one and the female half of the other; and in two cases of gastro-enterostomy in which I used these altered buttons, I found them to work perfectly.

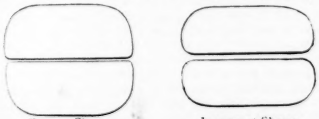
The Frank coupler gives a result which approaches

closely to that of the Murphy button, and the idea of having absorbable ends is a good one; but we have to place our entire dependence on a piece of rubber tubing, the strength and elasticity of which we are not capable of judging, and which varies with age. The decalcified bone ends are sometimes found warped out of shape and cannot then approximate as accurately as they should. In one of my cases in which I used the coupler there was slight leakage at the point of mesenteric junction, which caused a localized abscess to form; fortunately, however, it did not cause death.

The cause of the leakage was insufficient pressure on the folded-in mesentery, just after the completion of the operation: the exudation of lymph, which occurred shortly after, evidently closed the interstices between the mesenteric layers, because the line of union was found to be perfect except at that point, and the infectious material was found completely encapsulated. It will be remembered that the special stitch which is taken through the mesentery draws in an extra fold of peritoneum, increasing the thickness of the gut at that point, and in the case of the coupler making it a source of danger at that spot, as the rubber may not be sufficiently strong to press the layers tight enough to prevent leakage.

With regard to the apposition of the coats of the bowel, the Frank coupler gives as good results as any other method, but the device as made at present is not as safe as the Murphy button.

One point that was noted in my work was that fewer adhesions were found at the line of union in the button, than in the suture cases; this is due to the fact that in



Correct Shape Incorrect Shape

all suture operations the stitches pass through the outer coats of the intestine and there is always some slight oozing of blood at the stitch holes, which increases the tendency to adhesion. On the contrary, in the button cases there is never any bleeding at the line of union and no exposure of sutures to tend toward the production of adhesions.

One thing to be observed in using mechanical devices is to use the largest size which can be easily introduced into the bowel, as it must necessarily follow that the diameter of the opening left by the button will be slightly smaller than the button itself, and if we use any device whose diameter is considerably less than that of the intestine we are sure to have contraction follow.

The conclusions which I have deduced from my experiments are as follows:

1. It is possible to make a safe and satisfactory end-to-end anastomosis.
2. With practice, a surgeon can, with nothing but a needle and thread, sew a divided bowel together and obtain a result which will almost equal that obtained by the use of the Murphy button.
3. The result obtained by the Murphy button is superior to that of any suture method yet devised.
4. The Murphy button and Frank coupler give the same anatomic result.
5. Contraction following end-to-end anastomosis is usually due to faulty technic.
6. The Murphy button is much safer and more reliable than the Frank coupler.
7. A perfect Murphy button, properly introduced, is the quickest, safest, and most reliable means of obtaining an anastomosis between any two viscera.
8. All devices which are used to support the gut in suture operations are unnecessary, and as good, if not better results, may be obtained without them.

My thanks are due to Drs. F. B. Carpenter, George H. Evans and Wm. Barbat for their able assistance in the work on which the paper is based.

MONSTROSITY OR DOUBLE FETUS.

BY J. E. BENTON, M.D.
CENTRAL CITY, NEB.

Myself and father, Dr. E. A. Benton, were called in consultation by Dr. W. N. Hunt of this city at 1 p.m., June 15, 1899, in the case of Mrs. D., a multipara in her fourth confinement. She had been in labor for about twelve hours with a vertex presentation in the first position, and strong labor pains for several hours after complete dilation of the os had failed to advance the head beyond the lower third of the pelvis. From

external examination and the history of the case, twin pregnancy was diagnosed, and under chloroform, forceps were applied and the head brought down with considerable difficulty through the external parts; but no more progress could be made toward delivery. We then concluded we had to deal with some kind of monstrosity. We amputated the head and tried to turn or bring it in position to deliver, but failed. We then brought down arms and shoulder and amputated all, but failed to deliver. We commenced hasty preparations for a

Cesarean section, but patient began sinking rapidly and died in less than an hour, although every effort was made to sustain the heart action. There was no hemorrhage or assignable cause for death other than shock. Post-mortem was made two hours after death and the monstrosity removed; amputated parts were stitched on. The accompanying photographs show the peculiar formation as much as possible, and it explains nearly all. The sex could not be determined. The caudal appendage so plainly seen in back view is undoubtedly a rudimentary development of a leg, it contained a bone and joint, evidently a knee-joint. The weight of the monstrosity was twelve pounds.

ANASTOMOSIS OF BLADDER TO RECTUM.

EXPERIMENTAL RESEARCH THEREON: A PRELIMINARY REPORT.

BY JACOB FRANK, M. D.

Surgeon to the St. Elizabeth and German Hospitals; Consulting Surgeon to the Jewish Orphan Home and Home for Aged Jews, Chicago; Corresponding Member of the Sociedad Medica "Pedro Escobedo"; Member of the Pan-American Congress, International Medical Congress, American Medical Association, etc.

CHICAGO.

In the spring of 1898 a series of experiments on the unilateral and bilateral implantation of the severed ureters into the rectum was conducted after a special method of my own, with the object of relieving many of the grave pathologic conditions arising in the bladder, that are aggravated by the presence of urine, or in congenital malformations, as exstrophy, as well as the avoidance of a nephrectomy for neoplasms involving the ureters, or injuries to the ureters in laparotomies. The ultimate results of these were discouraging, although the operative technic was all that could have been wished for. From the knowledge and experience gained, and keeping in mind the numerous pathologic conditions to which the bladder is heir, the plan of anastomosing the bladder to the rectum seemed feasible and was carried out on fifteen dogs, with good results. After looking over all the available literature upon the subject of exstrophy of the bladder, etc., I find no one attempting this method, and therefore I think I may claim originality for the same.

The operation consists of anastomosing the bladder to the rectum with my decalcified bone coupler, a description of which can be found in the *Medical Record*, Oct. 3, 1896, the JOURNAL, June 19, 1897, and in *Medicine*, January, 1897. The technic is as follows: in a male dog the incision is made in the groin, and in a bitch in the median line. Generally the bladder is found distended, and is emptied by squeezing it gently with the hand, when the urine escapes through the natural channel. The rectum is next picked up and freed of its contents, as in any intestinal operation. The bladder and the rectum are then brought forward and placed in position for anastomosis. Two or three interrupted Lembert sutures are now taken about half an inch below the lower ends of the incisions determined upon in the bladder and rectum, care being exercised in selecting them that the coupler, when it is inserted, will not encroach upon the ureteral openings in the bladder. A longitudinal incision is then made in the bladder large enough for the coupler selected, and a puckering string applied over and over the cut margin. The rectum is next opened in its long axis and a puckering string similarly applied. The suture should be taken so that the free ends lie uppermost, thus facilitating easy tying. The operator now slips the coupler into the bladder opening, at the same time gently spreading the collars apart, while an assistant makes one knot and draws down on the puckering string until the rubber tubing is felt; another knot is made and the ligature cut off short. The other half of the coupler is then slipped into the rectal opening and likewise tied and cut off. Several interrupted Lembert sutures are taken around the borders to make the work more secure. The operation is very simple and can be accomplished in ten or fifteen minutes.

Of the fifteen dogs operated upon, ten recovered and five died. Post-mortems showed no septic conditions of ureters or kidneys. In the first two experiments the technic was not thoroughly understood, and a large amount of unnecessary work was done. Several of the dogs that recovered were killed for pathologic and bacteriologic examination. Three are still living—the longest three months—and it is my intention to keep these somewhat longer and then kill them for the further study of the effects of the operation upon the ureters, kidneys and site of anastomosis. The dogs pass three or four watery stools a day through the rectum, and the male dogs hoist their legs in the act of micturition but without accomplishing it through the penis. The animals are playful and lively after recovery, and one not knowing an operation has been performed would have no suspicion aroused.

In the first six experiments a 5/8 inch coupler was used, but later in large dogs a 7/8 inch, and in smaller dogs a 3/4 inch coupler was inserted. The small piece of rubber tubing has never failed to pass away. Silk was used in all experiments. The following pathologic and bacteriologic reports of experiments 4 and 13 were made for me by Dr. Maxmilian Herzog:

EXPERIMENT 4.—Male dog, weight 22 pounds; operated on May 6, 1899, killed May 21, 1899. At the post-mortem examination the following technic and inoculations were made: The ureters of both kidneys were ligated a short distance below their origin from the pelvis, and the kidney removed. A platinum loop previously heated was introduced through an opening—made under the usual aseptic conditions—into the pelvis of each kidney, and a blood-serum and glycerin-agar tube inoculated from each side. Of these four culture-media three remained permanently sterile. One blood-serum tube on the third day showed a moist, shiny, whitish growth which liquefied the culture soil. The growth consisted of very small bacilli, the character of which was not studied any further. They were not colon bacilli, and their appearance was probably due to contamination. At the site where the anastomosis was made the tissue appeared perfectly smooth and normal. No redness or swelling was noticeable to the naked eye. Microscopic sections made from this part, including both the bladder and rectum, were stained by various methods.

In the rectum the following conditions were noted: The intestinal and bladder walls have completely united, and blend in such a manner that the two tissues form an acute angle of about 80 degrees, which projects into the bladder. The intestinal surface is lined by mucous membrane, the bladder surface by stratified epithelium. Both these tissues present a normal appearance. They do not come completely together. On one side the intestinal mucous membrane becomes thinned out, on the other layers of epithelial cells lining the bladder become gradually reduced to a single layer. It appears as if from here the epithelial cells were in the act of growing over to reach the mucous membrane, although a small strip of tissue has not yet been covered by epithelial cells. Here connective tissue lies free to the surface. This connective tissue consists of cells of an embryonal type and of fibroblasts. The union between the bladder and rectal walls is complete throughout their whole thickness. One generally cannot distinguish—at the line of the union—what was originally bladder and what was intestinal tissue. The mucous membrane of the rectum, and the epithelial lining of the bladder have entirely disappeared at the line of union. Still one can see the lymphoid tissue of the rectum at the site of the union, although the lymph follicles vary from the normal in that they show a diffuse infiltration of polymorphonuclear leucocytes. So numerous are the latter that they predominate over the cells of a lymphoid character.

Gram's stain shows, in the tissues of the anastomosis around the line of union, short bacilli with rounded ends, which have poorly kept the stain. These micro-organisms are probably colon bacilli. The examination of the kidney tissue—cortex, medulla and pelvis—show normal conditions, with no evidence of inflammation or degeneration.

EXPERIMENT 13.—Bitch; weight 40 pounds; operated on June 1, 1899, killed June 28, 1899. The animal is well nourished, in perfect health, very playful and lively; killed by chloroform narcosis. Externally the abdomen presents in the median line, beginning about an inch above the symphisis pubis and extending upward for a distance of about 2½ inches, a healed, smooth, linear cicatrix. Upon opening the abdomen by a long median incision, the large omentum is found very slightly adherent to the internal surface of the abdominal parietes at the site of the cicatrix. The extent of these adhesions is very small. The omentum shows no signs of inflammation.

The abdominal and pelvic cavities do not contain any fluid. The peritoneum is smooth and shining, and shows no redness or evidence of inflammation. The bladder is well contracted, firmly united to the rectum, and the place of union is everywhere covered by an uninterrupted coat of smooth peritoneum. An inspection of the intestines shows them to be normal.

The kidneys are now freed from the surrounding connective tissue, and a heated platinum loop introduced into the pelvis, and cultures made under the usual aseptic precautions. The ureters are then dissected free and the kidneys, ureters, bladder and part of the rectum removed.

The kidneys are of normal size and appearance, but, like all the internal organs, are congested in consequence of the death by chloroform. Cortex and medulla show normal relation and appearance. The pelves do not contain any appreciable amount of fluid. The mucous membrane of the pelvis is smooth and pale, and presents no signs of inflammation. The ureters are not enlarged. The internal surface of the bladder, which contained some fecal matter, is thrown into rugæ. In color it is pale pink, and microscopically shows no inflammatory changes. The anastomosis is firm, and admits the tip of the index finger. The anterior aspect of the ring is lined by bladder tissue, the posterior by rectal mucous membrane, which appears perfectly normal. Where the tissues from the bladder and the rectum meet, there is a slight depression which runs along the whole opening. The rectal mucous membrane in the neighborhood of the anastomosis appears normal. All internal organs, such as spleen, liver, lungs, heart, etc., are in a normal condition.

MICROSCOPIC EXAMINATION.—Pieces of tissue were fixed in Zenker's fluid, imbedded in paraffin, and stained by various methods.

ANASTOMOSIS.—The union between the wall of the rectum and that of the bladder is perfect. There is no doubling up of either intestinal or vesical tissue, and the line of union contains very little newly-formed connective (cicatricial) tissue. No evidence of inflammation is found in the line of union. The rectum presents a normal histologic appearance. The internal surface of the bladder, however, shows some marked changes. The lining epithelium at and near the point of union is missing, and the tissue forming the surface has the character of granulation tissue. It consists of a vascular tissue formed of round cells imbedded in a matrix of fusiform cells and connective-tissue fibers. It appears, therefore, that the presence of the fecal matter with its numerous bacteria has set up an inflammatory reaction on the internal surface of the bladder. Bacteria, however, were not found in the granulation tissue, nor in the tissue forming the line of union between the bladder and rectum. The following very interesting observation was made at the line of union: In some places the columnar epithelium of the rectal mucous membrane has grown from the rectal tissue over to the bladder surface. This covering of the bladder surface by intestinal epithelium is not yet very extensive, but there undoubtedly exists a marked tendency of the intestinal epithelium to grow by extension over the bladder surface and cover it, which, in consequence of irritation, has lost its own epithelium. In both kidneys the pelvis, medulla and cortex present no appreciable histologic changes, and no signs of inflammation or degeneration. There are found, however, a few micro-organisms in both organs as follows:

Right kidney, in tissue near the surface of the pelvis, bacilli, a few diplococci and some deeply staining round bodies which look like either torulo saccharomyces or protozoic bodies; in the cortex a few bacilli in the convoluted tubules and in Bowman's capsules.

Left kidney, in tissue near surface of the pelvis, a few bacilli; in the cortex likewise a few bacilli.

These micro-organisms are nowhere found in large numbers but only seen sparingly here and there.

BACTERIOLOGIC EXAMINATION.—Two glycerin-agar tubes were inoculated from the pelvis of each kidney. Of each of the two groups one developed a growth, consisting in each instance of a mixture of bacilli—colon as it appears—and diplococci.

Epicrisis: It must be conceded that both kidneys in this case had become infected. But it appears moreover that the infection must have only recently occurred. The number of micro-organisms found in the kidney was not large, and there were not yet present any appreciable histologic changes. The mucous membrane of the bladder, it appears, in consequence of the irritation from the fecal matter, had lost, in part at least, its epithelium and had developed signs of a reactionary inflammation. It is not unreasonable to suppose that the infection which had occurred might have been prevented by regularly washing out the bladder, which, in the case of a dog, cannot be well done, but which could be done with a human patient.

The above is only preliminary to a complete paper which will be published in a short time, containing a detailed account of all the experimental work, together with microphotographs, photographs of the gross specimens and drawings illustrating the technic.

SEEING CAPILLARY CIRCULATION IN ONE'S OWN RETINA.*

BY C. E. NORTON, M.D.

LEWISTON, ME.

This paper is presented to the ASSOCIATION for three reasons: 1, the subject has a scientific interest; 2, it has a practical bearing; and 3, I have presented it for a personal reason. I have written a short note on this subject before[1]. On reading this note some oculists and other scientific men have expressed the opinion that the phenomena seen are not due to the capillary circulation, but are due to muscæ volitantes. Believing, as I do, that it is possible to see the corpuscles of the blood moving in the capillaries of the retina and that these corcupsles are not the same as muscæ volitantes, nor should they receive the same name if we wish to preserve scientific accuracy in our nomenclature, I have written this paper, in which I endeavor to demonstrate the accuracy of my belief.

Over twenty years ago I discovered that while looking at a clear sky through a piece of dark blue glass I was able to see small, bright objects moving in all directions with a peculiar jerky motion. Later experiments showed me that these bright objects could be seen more plainly if several thicknesses of glass were used. I have never failed in endeavoring to demonstrate this phenomena to others. I have found that the same thing can be seen by the use of glass of other colors, but it is plainer with the blue than with any other glass that I have used. I can explain the action of colored glass only on the theory that the high color obscures the vision of external objects and allows the attention to be concentrated on entoptic phenomena and the bright color furnishes a homogeneous background which affords a proper contrast when the entoptic vision is projected on it.

I will endeavor to answer the question: "Why is this phenomenon not due to muscæ volitantes?" In the first place it will be well to define the terms used. Muscæ volitantes are due to particles, strands, or masses floating more or less freely in the vitreous humor, or in a chamber between the vitreous and the crystalline lens. Any motion of muscæ is due either to gravity or to movements of the eyes, and this movement may be in any direction. If we suddenly turn the eyes upward and immediately down again the muscæ will float upward and then gradually settle down into the lower field of vision and sometimes below the field of vision. They may follow the same path in falling down that they had in going up. Again, by a sudden turn of the eye downward and then holding it still we may be able to cause these muscæ gentic particles to rebound and rise higher in the field of vision. Again, it is possible while lying on the back to get one of the particles to float directly in the center of the field of vision, and we may be able by care to balance and hold the particle in this central position.

The particles that can be seen with the blue glass have

*Presented to the Section on Ophthalmology, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio June 6-9, 1899.

[1] Annales D' Oculistique (English edition), May, 1896.

none of these properties of muscæ. The particles are not floating freely, but move only in definite lines. Gravity has no effect on them. Movement of the eyes in any direction carries all of the particles seen in the same direction, with the same angular velocity that the eye has. Suddenly stopping the motion of the eye does not allow the particles to fall in any way. It is an impossibility to make these particles rebound. They never move backward and forward in the same path. It is absolutely impossible to bring one of them to the center of the field of vision. The particles that produce muscæ volitantes are frequently globular in appearance, or sometimes ring-like, and these rings sometimes have a darker center. These rings or globes may be of sufficient size to subtend one or more minutes of the arc. In all of these respects muscæ differ from the spots seen with the blue glass. The latter are so small that it is impossible to perceive any structure whatever. Sometimes a number of globular or ring-like muscæ may be seen to be connected together by a band, forming an appearance resembling a string of beads. These strings may sometimes be straight and of some length. The particles seen with blue glass are never connected together by any visible band, neither are they ever arranged in a straight line of an appreciable length.

Having pointed out the dissimilarity between muscæ and the particles seen with the blue glass, we will consider these particles more particularly. They are very small and without visible structure. Their motion is a peculiar jerky one, each particle moving forward rapidly for a moment and then for a moment having a slower motion. During the rapid part of the motion the particles seem to be slightly elongated; without doubt this apparent elongation is due to the "persistence of vision." The motion of these particles exactly corresponds to that seen in the capillaries in the web of a frog's foot when it is examined under the microscope. The motion is never forward and back along a single path, but always in one direction. The jerks of this motion are synchronous with the pulse-beat. The number of jerks may be increased by anything that will increase the number of heart-beats, for example, physical exercise.

None of these particles can be seen in the field at the point of fixation corresponding on the retina to the macula lutea, but they are seen all around this point and their paths bear the same relation to the point of fixation that the retinal capillaries do to the macula lutea. Any movement of the eye gives the particles together in their paths the same movement both in speed and in distance as the angular movement of the eye. This fact would prove that the particles must be very near the percipient layer of the retina, as if they were situated any appreciable distance in front of the retina, their angular motion would be different from that of the eye.

The foregoing evidence seems to show that there is no similarity between these particles and muscæ volitantes, with the slightest exception that they are both entoptic appearances. There is everything to prove and nothing to disprove that the appearance is due to the image or shadow of the blood-corpuscles in the capillaries of the retina falling on its percipient layer. That these corpuscles have been seen and described by others there is no doubt. The only claim to originality that I make is that I have discovered an easy method of seeing them when the eyes are in health.

This subject has a practical bearing. This appearance is sometimes seen without the aid of blue glass. When this occurs frequently or constantly in the case of persons who are not trying to see it, it is valuable evidence of ocular overwork. And when the appearance is continuous I have seen some evidence tending to show that it is a premonitory symptom of neurasthenia, but I have been unable to give this subject the attention which it doubtless deserves, as this class of patients seldom come to an oculist.

DISCUSSION.

DR. GEORGE M. GOULD.—I do not know that I can add anything of value to this discussion until I can make the experiments with the blue glass, and I can have no opinion on the matter at present further than that derived from a general consideration of the subject. I cannot see how there can be sufficient magnifying power added to the eye to make it possible to see the red blood-corpuscles. It takes a very high magnification to enable us to see them by the microscope. I have considered the phenomena spoken of as a matter of accommodation. Last year I spent some time in the mountains, and while there I noticed a great prevalence of muscæ volitantes, which were present all the time I remained there. I found that if I examined them without accommodation they were say a quarter of an inch in diameter, when looking at distant clouds, but with the use of the accommodation, and especially with the aid of ground glass, they narrowed down to the size of pin points. I have been supposing that these were the phenomena that the Doctor alluded to. I shall be very much interested in going through the experiments spoken of, and yet I cannot readily see theoretically how the retina can see its own red blood-corpuscles. This subject is indirectly related to a little instrument I meant to have shown at the meeting last year in Denver, but which was unfortunately broken in transit. It consisted in revolving a pinhole-perforated disc, 1/16 of an inch around the center of the pupil, so that it would throw shadows on either side of the capillaries.

DR. A. B. HALE.—If Dr. Norton will refer to Zeng's article in the *Monatsblatter* of April, 1897, he will find corroboration of his studies in perhaps more detail. It was enough to convince me that one could see his own blood-corpuscles and Zeng even thinks he can detect the red from the white corpulscles. The work was very thoroughly done and with enough detail to make one abandon the idea of muscæ volitantes.

DR. EDWARD JACKSON.—There can be no doubt as to what it is, for any one who has seen it will at once be struck by the resemblance to the capillary structure of the frog's foot. We must remember that the corpuscle is there in close relation to the retinal percipient elements so that the image is as large as the object. If you will take some object at a known distance and compare it with the size of these moving bodies, you can satisfy yourself that they are approximately the size of the blood-corpuscles; I think they are a little larger than the blood-corpuscles, probably from diffusion. I can see them even against this gray sky without any blue glass, and I can always see them against a blue sky. I think the blue brings them out because it approaches nearly to the complementary color of the corpuscle. There can be no question but that they correspond in size to the projected image of a blood-corpuscle situated in the retina and their notion is very characteristic.

DR. C. E. NORTON.—In my experiments with the colored glass I have found that the glasses having the colors that came near the violet end of the spectrum showed the corpuscles much more distinctly than those approaching the red, and I have not been able to see them very distinctly with any other glass, but I do not know that this has any special significance.

CHRONIC INTERSTITIAL NEPHRITIS.

TREATMENT OF THE HEART THEREIN.

BY ARTHUR R. ELLIOTT, M.D.

CHICAGO.

The sequence of events occurring in the cardiovascular apparatus during the progress of chronic interstitial nephritis is recognized as constituting an integral part of the pathologic incidence of this form of Bright's disease. The changes taking place may be briefly summed up as sclerosis of the arterial system and hypertrophy of the heart, conditions which in the fullness of their development invariably result in heart failure. The constancy of these circulatory accompaniments has been recognized since the days of Bright, who placed the per-

*Presented to the Section on Practice of Medicine, at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus, Ohio, June 6-9, 1899.

centage of occurrence at 65. More recent estimates make a much higher showing, Goodhart's post-mortem average being 89.6 per cent., Ewald's 84 per cent., Kanthack and Holmes' 90 per cent., while Dickinson, Tiard, Balfour and others regard it as certain that thickening of the arteries and hypertrophy of the left ventricle are invariably associated with cirrhotic kidneys. It is not too much to say that hypertrophy of the heart and arterial fibrosis accompany, in some degree, every interstitial nephritis of any standing, and are dominant factors in the clinical history. In brief detail the cardiovascular sequence is as follows: As a result of the renal lesion and the consequent imperfect depuration of the blood or because of conditions which coexist, although not necessarily the outcome of the renal changes, an abnormally high vascular tension becomes established and may persist for years and progressively increase. This sooner or later brings about certain alterations in the walls of the arterioles, resulting in thickening, loss of elasticity and increasing resistance to the onward passage of the blood. This imposes an increased burden upon the left ventricle, which undergoes hypertrophy to cope successfully with the high peripheral resistance. Thus compensation is established. Up to a certain point this hypertrophy of the heart may be said to be a "compensatory" or at least an "accommodation" enlargement, and it is to that extent fortuitous and desirable, and so long as it compensates the renal lesion, its purposes are good. The evils of excessive hypertrophy may as a rule be successfully combated, but deficient or faulty compensation is fraught with serious consquences to the patient.

Samuel West[1], in the last Lettsomian lectures, remarks, "A persistently high tension under ordinary conditions is of itself mischievous, but not so with granular kidney, paradoxical as it may seem. The patient is best without granular kidney, but if the kidneys be granular, it is better that the tension be high than low; in other words, the patient is worse with low tension."

The changes in the arteries are progressive, and the increased blood-pressure permanent. The hypertrophied muscular tissue is prone to degenerative changes, and shows a greater tendency to subsequent exhaustion and weakness than the normal heart tissues, so that it is but a question of time until increasing impairment of the nutrition of the myocardium with constantly growing peripheral resistance results in failure of compensation and dilation of the hypertrophied ventricles. This nice adjustment to conditions that Nature brings about in the circulatory organs suffices by its compensation of the renal lesion to obviate the main danger of the nephritis, the retention of the uremic toxins. The debt which the kidneys owe the heart in this way is amply demonstrated when the cardiac compensation fails. Then the greatly diminished urine, increasing albuminuria, and rapidly developing uremia leave us in no doubt as to what organ has conserved the life of the patient. Moreover, because of the friendly offices of the heart we can obtain but little true idea of what the organic capacity of the kidneys really is, for what they are able to accomplish with the co-operation of a sustained blood-pressure and what they are capable of when deprived of such assistance are two widely different things. Kidneys which can well maintain their function under increased blood-pressure prove miserably inadequate when such support is removed. In a general way it may in consequence be stated that the condition of the heart is the best gauge of the disease. The clinical history of the vast majority of cases at their termination is that the excretion of urine was sufficiently good for the maintenance of life and that the direct cause of death came elsewhere than from the kidneys—usually the heart.

Furbringer[2] is at some pains to point out that the heart does not simply compensate but overcompensates the kidney lesion. This may be a necessity imposed by the peculiar character of the renal changes but, however that may be, the cardiac condition is one of tense adjustment which becomes progressively more susceptible to influence, more sensitive, more resentful to any increase in the circulatory load. During the early stages of the disease the cardiac hypertrophy is not extreme enough to give rise to symptoms sufficiently pronounced to awaken even the notice of the patient. With the progress of the malady, evidences of embarrassment on the part of the heart become manifest, and giddiness, dyspnea on exertion, cardiac discomfort, headache and palpitation give to the clinical picture the "cardiac" aspect it seldom loses during subsequent progress. These symptoms are at first transitory, occurring at night time or following unusual exertion. With the onward march of the disease, these signs of impaired circulation become more permanent and distinct, and during the last few weeks the dyspnea is constant and dropsy and uremic symptoms supervene. At the same time the pulse loses somewhat in tension and the heart sounds become less distinct and accentuated. The pulse, save in rare instances, may be said never to lose the element of tension, although this may become modified through failure of the muscular power of the heart.

In the treatment of chronic interstitial nephritis, if we are to draw any inference from the clinical history, we have decidedly to deal with more than one set of organs—the kidneys. The damage wrought by degenerative process in the kidneys is irremediable, and in our endeavors to favorably influence the progress of the disease, we may with profit teach our art to follow Nature's lead and assist her in her heroic efforts at a conservative systemic compensation. Unaided the preservative adjustment in the circulatory organs—which is Nature's compromise with the erring kidneys—is sufficient of itself to extend the course of the disease over many years, and with such perfect accommodation that it may be only through some untoward circumstance that the real condition of affairs is discovered. By contrast, the futility of our own endeavors when the compensation has failed is apparent. The problem before us in the management of the disease will always include our utmost to conserve the damaged kidneys, and, if possible, stay the progress of the degenerative changes there, but it is no less incumbent upon us and important to maintain the *status quo* in the circulatory system. No greater mistake could be made than to approach the question of treatment solely from the standpoint of the kidneys and leave the overburdened heart and arteries to shift for themselves under the exigencies of an impaired organic life. With the greatest care we must avoid all conditions which threaten the hypertrophied and sensitive heart fibers. We must employ all means to support the tone of the cardiac muscle and promote the equanimity of its nervous mechanism, and when compensation fails, we must strive to restore, if possible, the damaged heart wall and re-establish previously existing conditions.

In my remarks upon treatment, I shall make no direct reference to the measures one should address toward the control of the renal condition, but will confine myself to the treatment of the heart and arteries. The conditions which confront us here are, as we have seen, thickened and inelastic arteries which are constantly

subjected to the strain of a heightened tension, and a hypertrophied and sensitive heart muscle. Thus the patient is exposed to the risk of rupture of the degenerated vessels on one hand, and to failure of the hypertrophied heart on the other. As has been pointed out, both the increased tension and cardiac enlargement are compensatory and preservative, and on this account any effort to qualify either, unless taken with full understanding of conditions, may prove meddlesome and mischievous. The question is: At what point is one's intervention warranted? It is impossible to lay down any rule, but it would seem best to abstain from any active intervention as long as there are no definite subjective symptoms present. As soon as compensation passes in either direction the point of exact adjustment there is not lack of evidence to publish it. An increase of tension in the arterial system beyond the bounds of safety becomes manifest in dizziness, ringing in the ears, headache, disturbed cardiac action, unusual fulness of vessels, occasionally epistaxis, or it may be temporary amblyopia. The first sign of a flagging heart is seen in the pulse, which loses some of its hardness and becomes irregular and frequent. Additional signs are dyspnea, post-sternal weight and discomfort, cough on exertion or recumbency, and some diminution in the volume of urine.

In the early stages of the nephritis, if it be our good fortune to assume charge of the case at that amenable period, we should begin while compensation is still well maintained to take measures to ensure permanence to the existing conditions. If the full co-operation of the patient can be secured, much may be done for his future health. With this end in view it may be well to set the matter plainly before him and definitely state the necessities of his case, for it is often difficult to secure the faithful and permanent co-operation of the patient in so chronic a disease. As an assurance that no important detail of the patient's life escape, it is well to have him set forth minutely and in full a sample day of his life, his hours of work and sleep, his manner of occupation, his diet and habits. In this way a more thorough regulation of the small details of life, which are often important, may be secured. It is well to bear in mind that the directions to the patient are for his permanent adoption. We should, therefore, not risk misunderstanding, by lack of explicitness of direction or by trusting important details to the faulty memory of the patient. It is far more satisfactory to furnish him with full written particulars of the course to be pursued.

The details of life which will need especial care in regulating are the diet, clothing, exercise and baths. Exercise is of more importance to the nephritic than perhaps to any other, because of the great need that exists to secure as good a nutritive condition as may be. Regular exercise in the open air should be recommended. This may consist of walks upon the level, perhaps golf upon a level course, or easy bicycle riding upon a smooth and level road. Strenuous forms of exercise, such as tennis and horseback riding, should be interdicted, and the patient must be counseled never to hurry, run, or climb long flights of stairs, walk in the face of a strong wind, or attempt to mount steep acclivities, lift heavy weights, or strain at stool, and to be careful not to exert upon a full stomach. He should be warned to carefully guard against exhaustion and desist from all activity at the earliest approach of a continuous fatigue.

The clothing is a matter of much importance. These patients very easily take cold, in which case the kidneys and heart bear the brunt of the disturbance, and often to their permanent detriment. Moreover, the contact of a chill air upon the surface causes contraction of the cutaneous capillaries, thus raising arterial tension and increasing the work of the heart. The patient must be cased in woolen garments from head to foot, and sleep with flannel next to the skin. In this manner, as Dickinson facetiously remarks, he may carry the temperature of summer under his waistcoat while breathing the air of winter, and so provide himself without leaving home with one of the advantages of travel.

The diet best suited to the control of the renal lesion is also best adapted for the heart. The cardiovascular changes are Nature's responsive efforts to combat imperfect blood depuration. Consequently, the careful regulation of the diet, according to the principles in vogue must form, especially in the earlier stages of the disease, the corner-stone of our treatment of the heart. The flatulence and autointoxication of indigestion are of all things the most disturbing to both the heart and kidneys. This is a development to which these patients are especially prone. The most scrupulous regularity of habit in regard to meals must be imposed, and the preparation of the food should of preference be by simple method. The patient must be cautioned against heavy meals, and eating to satiety, and be instructed against fast eating and insufficient mastication of the food. The regularity of the bowels should be scrupulously maintained, and an occasional mild mercurial purge administered. Warning must be made against the immoderate use of tobacco, the use of alcoholics, sexual excess, and emotional disturbances, because of their disturbing effect upon the cardiac system.

At the earliest signs of cardiac embarrassment some restriction in activity should be insisted upon and when compensation seems threatened, or has already given way, absolute rest in bed must be enforced. It should be remembered, however, that, beneficial as rest may be to tide over a period of wavering compensation, prolonged bodily inaction is undesirable and may work positive harm by impairing the nutrition, and thus hastening the degenerative changes at work in the cardiac walls. During the period of rest, massage and passive movements may do much to obviate these undesirable results. The greatest importance attaches to sustaining the mental tone of the patient, and regular sleep, which is one of the best of heart tonics, should be secured. To this end paraldehyde, trional and sulphonal may all serve excellent purposes and when a simple reflex irritability seems to be the underlying cause, the bromids may suffice. Chloral is frequently a dangerous cardiac depressant and opium is bad for the kidneys.

The medicinal measures which we can bring to bear upon the heart during the existence of its compensation are limited to the vasodilators. The effect of these remedies is largely mechanical. They act by dilating the capillaries, lowering peripheral resistance and thus diminishing the work of the heart. Moreover, by allowing a freer passage of blood through the vessels, the nutrition of the various tissues is improved. They are useful to overcome excess of tension in the arterial system, and are valuable aids in securing relief to an overburdened heart. To meet alarming symptoms and produce at once a decided effect upon blood-pressure, no measure is so useful as a free catharsis. In selecting a cathartic for this purpose, it is not a matter of indifference which one is chosen. Some preparation of mercury should be employed, for from it more decided benefit can be derived than from larger doses of other purgatives. The beneficial effect upon the tension of such a measure is well demonstrated in sphygmographic pulse-tracings

taken before and after the action of an aperient. This effect may be continued and supplemented by repeated depletion from the bowels or better by means of vasodilators. The vasodilators most useful in controlling arterial tension are the nitrites and the iodids. To meet emergencies amyl nitrite may be employed by inhalation, but its action is too ephemeral to admit of its continued use. For this purpose nitroglycerin is usually the drug of choice. It is well to bear in mind when prescribing the nitrites that those who have supernormal tension manifest a peculiar tolerance toward their action. Given in conventional doses they may prove disappointing. Nitroglycerin is very diffusible and within a few (five) minutes its effects become apparent, while at the end of three hours the arterial tension resumes its usual degree. A longer period than three hours should, therefore, not be allowed to elapse between doses, if a continuous effect is to be secured. The action of the iodids upon the vascular tension has been a subject of much dispute: some observers denying to them all effect and even condemning their use, while others enthusiastically praise them. Vierordt[3] expresses himself unqualifiedly in their favor, and reports undoubted good effects in the control of tension. He regards the "modus operandi" of the iodids as entirely hypothetical, and, taking exception to Huchard and others who attribute to them direct action upon the heart and vasomotor nerves, he thinks it probable that the morbid process in the blood-vessels, which otherwise always shows a progressive character, is brought to a standstill, and that consequently the heightened blood-pressure is gradually lowered, which would provide for a decided amelioration of the circulatory function, although no retrogression of the vascular changes may be looked for. Judged from the effects upon the tension when administered for a considerable period, they may certainly be accounted a valuable means of relief to the overloaded circulation, and they may as well tend to restrain the hyperplasia in the kidneys. The most appropriate forms for administration are sodium and potassium iodids, in from five to ten grain doses given well diluted one hour after meals. Mercury protoiodid seems occasionally to render very happy service in cases marked by a bilious habit with coated tongue and sluggish liver. It is undesirable to give a prolonged course of mercury in nephritis, so that the protoiodid is best employed as an alternating substitute with one of the other iodids, and not continued for longer than two weeks at a time. One-sixth of a grain thrice daily is an appropriate quantity.

It is unnecessary to state that heart tonics of the digitalis group should never be used during the stage of cardiac hypertrophy. Digitalis and its congeners are only admissible when there is indication of failing compensation. In employing digitalis, its vasoconstrictor action must be borne in mind and provided against or the peripheral resistance may be dangerously augmented. This is best accomplished by the simultaneous administration of a vasodilator. A good practice is to give the vasodilator about one hour after the digitalis. The latter is slowly absorbed, while the vasodilators are without exception quickly diffusible, and by this arrangement of administration, the maximum effect of each falls together and control of tension is secured. It is a safe rule to follow, to always combine a nitrite or iodid with digitalis in interstitial nephritis, for some element of tension is never lacking. Strophanthus may be advantageously substituted for digitalis when the pulse tension is high. Its efficacy as a heart tonic is established and it lacks the arterial action of digitalis. It must, however, be used with caution in advanced degeneration of the myocardium. If digitalis and strophanthus fail to elicit response from the failing heart, the outlook is grave indeed, and recourse to other measures holds out small prospect. Caffein and theobromin may prove of value on occasion, and nux vomica and strychnin will always be of the utmost value as adjuvants to any plan of treatment.

In the employment of the measures referred to it may be stated that digitalis and the heart tonics should in all cases be reserved for a failing heart while the vasodilators may be employed throughout, first as conservators of the heart by modifying peripheral resistance, and afterward as guards to the action of the heart tonics.

Time will not permit of more than a cursory reference to the applicability of the Schott gymnastic methods to the failing heart of Bright's disease, nor is my own experience in their use sufficient to enable me to dogmatize. Schott gymnastic exercises comprise certain volitional muscular movements made against graduated resistance applied by the hand of the operator, and having for their object the stimulation of the circulation in the muscles brought into action whereby the heart is reflexly induced to stronger and more abundant contractions with a simultaneous relieving of the venous and acceleration of the arterial and lymphatic circulations. These movements are applied according to a definite plan and with such attention to detail as to secure in an increased degree all the good effects of passive movements with little or no fatigue. To quote the words of R. Douglas Powell[4]: "The effect of the Schott exercises may be said to be a stimulation of the heart's action with some steadying effect and increased completion of systole, an improved circulation through the coronary arteries, and an increased mobility of the blood by its readier passage in greater bulk through the muscles, especially on their venous side. Their effect on the general blood-pressure is that during the exercise itself the pressure first rises above the normal, but begins to fall even during the continuance of the exercise, so that at the end of the treatment it has usually reached the normal. After cessation the pressure continues to fall and may become subnormal for half an hour or longer, when it slowly rises again to its initial height."

These exercises have been found of most excellent service in the failing heart of valvular compensation. By analogy it would seem not unlikely that they might prove to be a valuable contribution toward our means of sustaining the degenerated heart of granular kidney. At the outset, however, we are confronted by the fact that these movements are absolutely contradicted in advanced arteriosclerosis characterized by hypertension and degenerated vessels, and that they offer but slight prospect of success in cases with even moderate arterial change. In arteriosclerosis, the increased energy of the heart's action caused by the muscular contractions is but inadequately offset by the coincident dilation of the arteries and hence a dangerous raising of the blood-pressure and strain upon the heart results. In place of an improvement of the cardiac insufficiency in such cases, the opposite effect is brought about. It is apparent at once that very few of the cases we are considering are eligible for this plan of treatment. Still just as there are certain cases of arteriosclerosis of moderate grade in which the Schott exercises may with certain modifications be employed to advantage, so there may be an occasional nephritic heart capable of deriving benefit from mechanico-gymnastics. In considering the question of the proper selection for mechanical treatment,

no general rule can be laid down. Each must be judged upon its own merits and with the utmost care, for great damage may be inflicted in unsuitable cases. When the sclerosis of the arteries is not general and advanced and the superficial vessels not rigid, an attempt with resistance exercises may be made, beginning in an insinuating way with the gentlest movements and desisting upon the first sign of fatigue. No progression should be made to the more trying movements until a beneficial reaction is apparent from the easier exercises. If these fail to elicit results, it is needless to persist. In cases where the heart is so feeble that the primary rise of blood-pressure caused by even gentle exercises interferes with its action, continuance of the treatment can but result harmfully. It may be laid down as an absolute rule to be followed in these cases, that when there is so advanced a degree of degeneration of the myocardium that digitalis and other heart stimulants are without effect, no attempt with resistance exercises should be made. In patients whose muscular powers are greatly enfeebled the treatment is also forbidden. Dropsy may be taken as a contraindication, as may also persistent dyspnea and engorgement of the rigid heart.

It is unnecessary to state that in using a measure which in these cases is so largely tentative, every precaution should be employed to secure safety and success. Not only should all the rules laid down by Schott and Besly Thorn be scrupulously obeyed, but the patient's condition must in all cases be looked to to furnish the individual indications so necessary to the success of any measure.

Although gymnastic exercises are but rarely permissible in the weak heart of interstitial nephritis, massage and passive movements are much more widely applicable. The experiments of Bruton and Tunnicliffe[5] go to show that the effect of massage and passive movements is to improve the circulation of lymph within the tissues and to determine to the muscles a larger supply of blood, thus at once stimulating nutrition and affording mechanical relief to an overloaded heart. The employment of these measures is accompanied primarily by a slight and transient rise in blood-pressure, which is soon followed by a fall in tension less extreme and not so long sustained as that following resistance exercises. The effect, therefore, of these measures is the same in quality as the Schott movements, differing only in degree and duration, while the dangerous increase of blood-pressure is eliminated. They furnish valuable means of obviating the circulatory stagnation and malnutrition of prolonged and enforced rest. In fact, it is this last conservative function that is the principal office of all these mechanical measures in the cases under consideration. Too much must not be expected of them. The very nature of the factors which bring about dilation of the hypertrophied heart of Bright's disease precludes the possibility of great or permanent results from any or every means we can bring to bear. Once dilation has taken place the outlook is indeed a dark one.

In concluding my remarks, I cannot do better than to repeat the words of Leonard G. Guthrie,[6] who gives as a guarding principle in the treatment of chronic nephritis the motto: "Watch the heart and pulse." Herein I am convinced is the surest way to the successful management of this widespread disease. Sooner or later the morbid process must end in death. But this termination can be longest postponed, the patient's interests can best be served, and his condition most securely palliated by placing the heart upon a therapeutic parity with the kidneys.

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DISCUSSION.

DR. C. H. MILLS of Illinois.—I have had a great deal of experience in diseases of the heart, largely during my service of fourteen months in charge of the hosptal. Under me came a great many cases of organic diseases of the heart. Aconite is a great remedy in Bright's disease of the kidneys and in the irritable heart. Besides there were given tonics—iron, gentian, cinchona, and when a sedative was needed, aconite.

DR. R. H. HENRY of Illinois.—I wish to say a word in regard to the use of mercury and iodid of potassium, for I was much impressed by the remarks made by Dr. Elliott. I believe the use of mercury and iodid of potassium will prolong the life in these cases: also, the use of the other tonics and vasomotor dilators. The long-continued use of iodid of potassium without disturbances of the stomach will prolong life in the most hopeless instances. The mercury has a specific effect in unloading the canal and in increasing the activity of the cells lining the canal, and so unloading a sluggish condition. I usually combine the nitrites with it, and I have had satisfactory results.

DR. NORMAN BRIDGE of Los Angeles, Cal.—I am really satisfied that there is nothing left to be said regarding the management of these cases; the speaker has covered the ground in such a thoughtful, judicious and able manner. Patients, in the light of existing knowledge, who can be managed as Dr. Elliott has suggested, will have the best treatment extant. From what he has stated, however, one would almost come to think that we ought to expect a curative effect from the iodids—a curative effect upon the disease itself. I fear that this is not justified by the experience of the profession. And so the thought that occurs to my mind as the paramount one is the need of further study to discover some means that shall lessen the progress of the disease; i. e., to stop the interstitial nephritis and lessen thereby the coincident thickening of the heart muscle and vessel-walls. It is probably true that the heart must undergo hypertrophy in all cases of interstitial nephritis. It is probably true that hypertrophy is exactly in proportion to the amount of disease in the kidneys, although I doubt if that is always the case. I think these pathologic processes which are conservative do not always go on exactly to this conservatism. Sometimes the hypertrophy is greater or less than necessary; we see that in the fibrosis of pulmonary tuberculosis. There it is a conservative condition; it helps to cure the patient. We know that when there is no hypertrophy the disease runs on rapidly to destruction. This shows the conservative power of Nature. It is, therefore, not true that we always have hypertrophy of the heart coming on with the interstitial nephritis in due proportion. I do not know that we know that patients die of heart failure. So long as the heart remains hypertrophied, and not dilated, we believe that the patients are going to live. We observe a number of cases where there is no giving away of the heart or blood-vessels, but where injury to the nervous centers and brain particularly seems to be the predominating cause of death. The amount of urea did not justify the expectation of fatal issue. The great desideratum in the treatment of this disease is to get the means of lessening the interstitial nephritis.

DR. ALFRED STENGEL of Philadelphia.—The paper of Dr. Elliott's is of unusual interest, which lies in the fact that he has pointed out the general relations of interstitial nephritis, and particularly that the vascular system is the point of attack for medical men. In the early stages, with treatment we can do good. Reduce the blood-pressure, and if possible control the fibritic changes, particularly with the Schott or mechanical method, with which I have had experience. Physiologists have shown that the effect of exercise is to reduce the blood-pressure in the muscles. I believe that the reduction in the blood-pressure is greater than Dr. Elliott is inclined to state in his paper. There is an increase in the blood-pressure in the beginning of the Schott treatment, but this is only temporary; it is soon followed by a fall in the pressure. In treating a case of chronic interstitial nephritis from the beginning, the institution of the systematic mechanical treatment may prevent fibritic changes in the blood-vessels and in the organs. For this disease is a general disease which affects the kidneys, liver, heart muscle, brain and other organs, sometimes one more than another—and it is to be controlled by measures which control the blood in general. We do not know how the nature of the poison developed, but we do have the means by

which we can obviate its effects. The continued use of mercury in small doses, I believe, may influence the elimination of this poison. As for the iodids, I am convinced that those of sodium and potassium are the preferable salts; they are better borne and have a less disturbing influence upon the heart. The mechanical treatment, I am convinced, is the treatment of the future for this disease. It should be given when the disease is forming.

DR. EDWARD F. WELLS of Chicago.—I wish to speak briefly upon a single point, that is, the reduction of blood-pressure. In interstitial nephritis there is an increase in the blood-pressure and a hypertrophy of the heart. This increase in blood-pressure causes a thickening of the arteries, the cardiac hypertrophy increases more and more, and if the patient takes some amount of active labor it is necessary that his nutrition should be kept up. The first thing to do is to stop any excessive amount of exercise he may be taking, and limit the amount of nitrogenous food, and I believe that a careful regime, such as the avoidance of draughts, regulation of his diet, the giving of large amounts of fluids to reduce the amount of poison in his system, will do vastly more good toward reducing the blood-pressure and relieving the patient and prolonging his life than any drugs. I do not wish to be understood as deprecating the use of drugs; I believe that the iodids are the drugs to be used. We should not lose sight of the careful regulation of the diet.

DR. JENKINS of Iowa.—I am very much pleased with Dr. Elliott's paper, and I wish to emphasize one portion of it regarding the use of nitroglycerin in cases of chronic interstitial nephritis. I have frequently had patients come to me with this disease for treatment, coming from other physicians, who had failed to try this remedy. Placing them on the use of strychnin, regulating their diet, and giving nitroglycerin relieved their symptoms and gave them many months of comfortable living. For this reason I am glad Dr. Elliott emphasized that portion of his paper. The disease has not been well treated until recently. Now it is, with careful bathing and dressing, dieting, regulation of bowels, with the administration of such vasomotor dilators as glonoin, one drop every two, three or four hours, and up to five drops, that benefit is to be derived.

DR. ARTHUR R. ELLIOTT, closing the discussion.—I wish to express my pleasure at the amount of discussion my paper called forth. I think cases of interstitial nephritis cannot be classified as all belonging to the cardiac type, any more than they can be said to belong to the purely nephritic type. The fibrosis is a general one affecting different portions of the body in different degrees. I would like to state that in the preparation of my paper I was influenced in setting forth measures of direct treatment against the disease in the later stages, i. e., when cardiac hypertrophy was present or failure threatened. I did not enter into any discussion of the early stages of the disease. If we could get hold of the disease in the earliest stages I think that hygienic, dietetic and other measures would give better results than could be obtained through the use of drugs. The cardiovascular changes of nephritis are Nature's protest against the results of imperfect metabolism in the blood-stream.

SYSTOLIC MITRAL MURMURS.*

THEIR TRANSMISSION, WITH SPECIAL REFERENCE TO THE NATURE OF THE SO-CALLED ANEMIC MURMURS.

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What is familiar to us is not necessarily well understood, and yet in medicine as much as in any branch of learning we are to accept this feeling of familiarity for knowledge. This thought must be my excuse, if one is necessary, for bringing to your attention a subject so familiar as the heart murmurs.

The question whether a systolic murmur is organic or functional is being constantly brought up for our decision, yet although it has been discussed many times there is still lacking that unanimity of opinion among the best authorities which would assure us that it has been definitely settled. The question is one of practical importance, and any addition to our knowledge, however small, should be welcome in our efforts to find a solution.

A review of the literature shows that the discussion has turned chiefly on the points of maximum intensity of these murmurs. The second left intercostal space has been the battle-field of the champions. Whether the point of maximum intensity was just over the pulmonary artery or a little outside of it has been the burning question. So many theories have been advanced to explain the murmurs in this region that Balfour[1] has well called it the "region of romance" for cardiac murmurs. In all this discussion the area of transmission of these murmurs has received little attention, although it seems to the writer to be of considerable importance. In fact, the method of conduction of the sounds and murmurs of the heart to the surface of the chest, and the area over which they may be heard have only of late received much attention, and we have still much to learn of these important and fundamental matters.

Gibson[2] in his recent book says: "We are by no means thoroughly acquainted with the physical facts which regulate the extent to which the sounds are conducted." And again: "The direction of propagation and the extent of conduction constitute a subject of much difficulty in the study of murmurs."

When a murmur is heard at a given point on the chest, one fact at least is true, namely, that there exist at this point vibrations of the chest wall capable of transmission to the ear and of such a character and intensity that they produce the sensation of sound. How these vibrations originate, where they start, and how they reach the point at which they are heard, are questions less definitely determined—questions of probability rather than fact, which still come to some extent within the realm of opinion and theory. It is important to thus recognize when we cross the boundary separating fact from theory.

Clinically, we find that these vibrations reach the chest wall at certain areas; experimentally we find that such vibrations may be caused by certain physical conditions; pathologically, we find these conditions existing at certain points in the heart and blood-vessels. In this way we can demonstrate the cause of certain murmurs. For example, we know that mitral regurgitation may cause vibrations which are heard as a systolic murmur near the apex of the heart. These vibrations are also heard in other areas, as will be considered later. It is worth while noting at this point, however, that the so-called anemic or functional murmurs frequently occur in trivial disturbances of health, are often transitory, and are rarely so associated with fatal disease as to give us the opportunity to definitely determine their cause by pathologic investigation. Our explanation of many of them is, therefore, based on inference, and carries a greater or less degree of probability rather than certainty.

It is generally accepted that mitral murmurs are heard best near the apex of the heart, and we commonly speak of this place as the "mitral area." The term is a good one, provided we do not assume that all murmurs heard in this area are generated at the mitral valve. It is not very uncommon to find a systolic murmur from the aortic valve transmitted to this point, and occasionally a presystolic murmur in this area finds its only explanation in aortic insufficiency. The vital point in all these cases is that the vibrations are carried here through the medium of the wall of the left ventricle and the blood within its cavity. This fact should be kept in mind when we speak of the "mitral area." In the same way it requires very little study of the distribution of murmurs to show that it is not safe to argue that because a murmur is heard at the aortic pulmonic, or tricuspid

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* Presented to the Section on Practice of Medicine at the Fiftieth Annual Meeting of the American Medical Association, held at Columbus Ohio, June 6-9, 1899.

area, it necessarily originates at the valve with a corresponding name.

It is useful, in the ordinary examination of the heart, to keep these four valve "areas" in mind, but in a careful study of murmurs it is better to picture the anatomical relations of the normal heart and blood-vessels to the chest wall. If we will modify this picture to suit the given case, as shown by the evidence of inspection, palpation and percussion; if we further bear in mind the area and consistency of the lungs, the thickness of the chest wall, and the bony or muscular nature of the chest wall at a given place, then, and not till then, we are prepared to interpret intelligently the conditions which determine the distribution of cardiac murmurs. In this way we shall find an explanation of many things which at first seem confusing and obscure.

Continuing our study of the mitral regurgitant murmur, it is generally stated that it is transmitted to the left from the "mitral area" into the axilla and may be heard at the angle of the scapula. Gibson's[3] description is, in my opinion, more accurate. He says: "It is propagated from this region in every direction, but to a different extent it is conducted to a greater distance in the direction of the axilla and scapula." Again: "Very frequently the murmur is found to have a position of intensity almost as great as that over the apex-beat at a point between the left shoulder-blade and the vertebral column, and there can not be the shadow of a doubt that the conduction of the murmur to this point is due to the proximity of the left auricle."

This area in the back just described, which we may call the mitral area in the back, has received little consideration in most text-books. They seldom attempt to explain how the murmur reaches this point and apparently leave one to infer that it is transmitted around the chest-wall from the apex. This view is wrong, for it would not account for those cases referred to by Gibson in which the intensity at the mitral area in the back is "almost as great as at the apex," and greater than in the intervening space in the axilla. Still less will it account for those cases in which the murmur is transmitted as far as the axilla and is then lost, and yet reappears at the mitral area in the back. And, further, we sometimes have cases in which the murmur is actually louder in the back than at the apex. The explanation is undoubtedly found, as Gibson says, in the "proximity of the left auricle."

From our association of the mitral murmurs with the apex of the heart, which lies superficially, we are apt to forget how deep in the chest the murmur originates. The mitral valve is deeply situated, the left auricle more so. It is the blood passing through the mitral valve into the auricle which causes the murmur, and, except so far as the vibration of the valve curtains partake in the production of the murmur, it originates in the blood within the auricular cavity. It is a safe assumption then, that at the posterior surface of the auricle vibrations of considerable intensity exist. How do they reach the back?

Between the left auricle and the vertebral column lie the aorta, esophagus, vena azygos, and surrounding tissues of the posterior mediastinum. Although the distance to the spine is short, the vibrations do not traverse this path ordinarily, and we must conclude that these structures are not good conductors. Were the vibrations thus carried to the spine they would be heard with greatest intensity where the bony structures of the spine come nearest to the surface. This is not the case. The mitral area of the back, where the murmur is most constantly heard and with the greatest intensity, lies a short distance inside the inner border of the left scapula and a short distance above its lower angle. This is the point where there is the thinnest layer of muscle in this part of the back. It lies just outside the deep longitudinal muscles along the spine, while it occupies a triangular interspace left by the trapezius, the latissimus dorsi, and the rhomboideus major muscles. Having ruled out the spine, the only medium of conduction from the left auricle to this thin part of the chest wall is the pulmonary tissue.

It is generally held that the pulmonary tissue offers an impediment to the transmission of vibrations from the heart, rather than a favorable avenue of conduction. This is certainly true in a relative sense, as compared with such avenues of conduction as the muscular walls of the heart or the column of blood within the heart or aorta, but it is true only in this relative sense. Furthermore, the extent to which it is true depends on the condition of the pulmonary tissue. If that is condensed or consolidated, it is recognized as a very good conductor of vibrations. On the other hand, if emphysema, the opposite condition to condensation—is present, we have a very poor conductor of vibrations, and it may be noted in passing that with an emphysematous condition of the lung a mitral murmur is inaudible or only very faintly heard in the back. Between these two extremes lies the condition of the normal pulmonary tissue, which, I think, from all the evidence, we must accept as a fairly good conductor of vibrations from the heart. This, at least, is an opinion into which I have been forced in trying to account for many of the peculiarities of the distribution of heart murmurs, and it seems the only rational way to account for the transmission of the mitral regurgitant murmur to the mitral area in the back.

Turning now to the front of the chest, let us consider how the conduction of vibrations by the normal lung tissue may affect the distribution of the murmur there. Does it not give us a more rational explanation of the characteristic distribution of the murmur in front? As Gibson says: "It is propagated in every direction, but to a greater extent in the direction of the axilla." Were it transmited from the apex alone, and solely by the chest wall, we should expect it to be transmitted best and farthest in the direction in which there is the best chance for bone conduction, and this is to the right and not to the left of the apex. If, however, we accept the view that the vibrations may be carried a moderate distance by the lung tissue, we have an easy explanation of the transmission to the left of the apex, for the distance from the vibrating left border of the auricle and ventricle to the chest wall as it rounds back into the axilla is only a short one. It is not claimed that there is no lateral transmission of murmurs by the chest wall itself, for that certainly exists, but it is felt that too much stress has been laid on this factor, and that, taken alone, it does not fully explain the phenomena.

A consideration of the thickness of the chest wall in front will perhaps give us an explanation of the common view that the murmur is transmitted to the left from the *apex* instead of, as is the fact, from the whole left border of the heart. The pectoral muscles form a thick layer and offer more or less of an impediment to the transmission of vibrations to the surface over them. Outside the boundaries of the pectoral muscles the murmur is heard more distinctly because the chest wall is thinner, and this gives us an area which extends along the border of the pectoral muscle from the apex to the left and up into the axilla.

The removal of the obstruction of the pectoral muscles throws interesting light on the subject. It is easily accomplished. If the left arm is raised upward and is then laid across the face so that the forearm and elbow

lie across the eyes, the pectoral muscles are relaxed and may then be pushed inward toward the median line far enough to allow the bell of the stethoscope to be applied to the chest wall at or just outside the mammary line. We are now listening just outside the left border of the heart with a chest wall as thin as it is farther down at the apex. This maneuver is best accomplished with the patient lying on the back, as better relaxation of the muscles is thus obtained. In females the breast may usually be carried out of the way in the same manner.

In this way we find not only that the murmur is audible all along the left border of the heart but that its intensity is greater at a given distance up from the apex than it is at the same distance to the left of the apex. Not infrequently the murmur is louder farther up the left border of the heart than at the apex itself. A very common place to hear the murmur loudest is in the third interspace. This is easily understood if we remember that we are now listening just opposite the mitral valve, the center of the left auricle, and the thickest part of the left ventricle—in other words, near the place where the vibrations should exist with greatest intensity. If we admit that the lung tissue is a fair conductor of vibrations, we readily explain why the murmur is heard so loud in the third interspace near the left border of the heart. Whether the murmur is heard loudest here or at the apex depends largely on the relative conducting power of the pulmonary tissue and the wall of the left ventricle in a given case.

We have followed the area of transmission of the mitral regurgitant murmur up the left border of the heart to the third interspace. In many cases it does not stop here, but we find the area extends still farther into the second interspace. Here we reach Naunyn's area and then the pulmonary area. I believe the medium of conduction here is the same as a little farther down, namely, from the upper part of the left auricle and the base of the left ventricle through the pulmonary tissue to the chest wall. It is quite possible that the left auricular appendix plays a part in the conduction of the murmur to this point, for it is the part of the left auricle which comes nearest to the surface of the chest. But by our explanation it is no longer necessary to assume that this appendix must touch the chest wall, or even that it must reach the anterior surface of the heart in order to have the murmur conducted to the second left interspace. The objection of Russell and his followers thus falls to the ground, while the conclusion of Naunyn and Balfour that this murmur may be of mitral origin stands, although their explanation that the left auricular appendix alone is the medium of conduction is, as Russell shows, "not proven."

Turning now from the conduction of the mitral systolic murmur beyond the area of the heart, we have still one area to consider over the heart itself. This may be called the "valvular area." It is about the junction of the third left costal cartilage and interspace with the sternum. Here we are directly over the anatomical position of the valves as they lie close together. It would seem almost superfluous to recall the fact that it is at or close to the valves beneath this area that all valvular murmurs originate, were it not that many very excellent text-books are careless about this matter, and say, for example, that the aortic systolic murmur originates at the aortic area. The chief medium of conduction from the valves to the front of the chest is the thick muscular walls at the base of the ventricles, in which the valves are imbedded. The path for conclusion is direct, the distance is not great, and, as a result, any valvular murmur can as a rule be heard at this area and frequently is louder and more distinct than at the more distant area corresponding to the valve at which it is generated.

We are not accustomed to pay so much attention to this "valvular area" because the fact that a murmur is heard here gives us little help in determining which valve is affected. Nevertheless, in studying the distribution of a given murmur this area should receive attention, for the murmur is sometimes heard here with marked intensity. This is true of mitral murmurs as well as others. Between this "valvular area" and the apex we find the mitral murmur transmitted with greater or less intensity according to the condition of the left ventricular wall beneath and the character of the lung and chest wall overlying the heart at a given point.

We are now prepared to consider the transmission of the mitral systolic murmur farther upward at the base of the heart and to the "aortic area" so-called. We have just seen that the vibrations are strong in the thick muscular base of the left ventricle. At this point the aortic begins and, remembering also the close connection of the aortic and mitral valves as well as the fact that during systole there is a continuous column of blood from the ventricle into the aorta, with the current flowing into the aorta, we should not be surprised to find the mitral systolic murmur carried into the aorta and audible at the aortic area. That it is thus carried to the aortic area may be frequently demonstrated, though I am not prepared to say how far it may be transmitted through the arteries beyond. The fact that mitral murmurs may be thus heard at the base and the mechanism by which this is brought about should be kept in mind when studying functional murmurs.

Mitral murmurs are frequently conducted over the chest far beyond the areas which we have considered, and the total area may include the whole chest. It is enough to say that the whole area of distribution depends on the intensity of the vibrations and the character of the conducting media. A further consideration of this topic is not necessary for the purposes of this paper.

We now come to the consideration of the so-called "anemic" murmurs. To say these murmurs are due to anemia to state a fact but to give no explanation of that fact. They are ordinarily included under the head of functional murmurs, indicating that they are not due to a pathologic condition of the valves or wall of the heart. This is not strictly true, for it is generally recognized that in some conditions of anemia the heart becomes dilated and the character of the murmur indicates valvular insufficiency as clearly as in organic disease. We shall consider only those murmurs which are heard in the second left intercostal space.

They are ordinarly ascribed to the pulmonary artery because they are heard in the "pulmonary" area. Since no lesions of the pulmonary artery are found, they are attributed to the condition of the blood itself. Is this interpretation correct? It certainly has not passed without challenge.

It is not my purpose to thoroughly review the discussion of this subject, but merely to mention a few explanations by well-known authorities to show that we need not feel bound to the view that the murmur originates in the pulmonary artery. Naunyn and Balfour contend that the murmur comes from the mitral valve. Russell asserts that it reaches the surface from the pulmonary artery. He does not, however, fall back on the state of the blood for an explanation, but thinks it might be caused by a dilated left auricle pressing upon and narrowing the lumen of the pulmonary artery, or that it might be a tricuspid regurgitant murmur transmitted

up the conus arteriosus. Gibson also attributes the murmur to tricuspid incompetence Sansom thinks the murmur is due to fibrillary tremor of the muscle of the conus arteriosus below the pulmonary valves.

Let us turn to the testimony of the murmurs themselves. I hold with those writers who state that the most common site for anemic murmur is at the base of the heart, especially in the second left interspace. But although the point of maximum intensity is often here, a study of the area of distribution shows it to be comparatively rare to find the murmur limited to this area. By moving the pectoral muscle out of the way, as previously described, the murmur will very commonly be found to be transmitted around the left border of the heart from the second into the third and sometimes into the fourth interspace. In quite a large number of cases the murmur has as great or even a greater intensity in the third than in the second interspace. This at once recalls the conditions we found while studying the mitral murmur and it immediately raises a difficulty in accounting for our murmur, on the supposition that it originates in the pulmonary artery or at the tricuspid valve.

The similarity to a mitral murmur is increased when we find the murmur transmitted still farther to the apex of the heart. And when we find it also transmitted to the mitral area in the back, the conclusion becomes inevitable that we have to deal with a murmur of mitral insufficiency. That mitral regurgitation may occur in some conditions of anemia is recognized by all writers. The only new thing in this study is the demonstration of a continuous series of transition stages among the anemic murmurs from a location limited to the pulmonary area to that of a characteristic murmur of mitral regurgitation. May we not be dealing with the same murmur in all these stages? If not where shall we draw the line between the anemic murmur due to mitral regurgitation and one due to some other cause?

Of all locations in which the murmur is heard, that at the mitral area in the back is the one showing most conclusively that it is a mitral murmur, and this is also the area which throws the greatest difficulties in the way of accounting for the murmurs at any other orifice. Using this area in the back as a test, I was surprised to find that the murmur was audible here in many cases in which it did not reach the apex. In fact, I have repeatedly heard the murmur in the back when in front it was only to be heard in the second left interspace and faintly in the third interspace. In some of these cases it was fully as loud in the back as in the front, in others it was only faint and distant, but still distinct. These observations I have frequently had verified by others so as to eliminate the possible element of enthusiasm and expectancy which leads one to hear what he wishes to hear, whether it is present or not. The results of the observations on a large number of cases carried on for several months may be summarized by saying that careful observation will show a systolic murmur at the mitral area in the back in a surprisingly large proportion of the anemic murmurs, even when they are not heard at the apex. This is not a constant accompaniment of the anemic murmur, neither is it of the organic mitral murmur, for reasons before stated. It should be added that in many of the cases, including practically all cases in which the murmur failed to reach the apex, there was no demonstrable dilatation of the heart. If we accept these data as correct, we are inevitably forced to the conclusion that many of the so-called "anemic" murmurs are of mitral origin, whether they reach the mitral area at the apex or not.

It may be urged that I have simply reported a series of cases which apparently grade into one another, and that it is a mere assumption on my part that they have a common origin. What proof is there that we are dealing with the same underlying cause through these various gradations?

This proof is to be found by watching the same case pass through the gradations from one stage to another. In a number of cases which have started with an "anemic" murmur heard in the second left intercostal space, extending around the left border of the heart to the apex, and heard also in the back, the area of distribution has diminished as progress has been made toward recovery. There has been left only a typical "anemic" murmur in the second left interspace, and in favorable cases this also has disappeared. The order of disappearance has not always been the same. Sometimes it has disappeared first in the back, less often first at the apex. In front we sometimes find a gradual recession of the murmur from the apex toward the base, more often we find the area splitting into an area at the base and one at the apex and generally the area at the apex disappears before the one at the base.

It may still be urged that our murmur may be a composite one, that we have, to be sure, in some cases a mitral murmur but combined with it an anemic murmur at the pulmonary orifice, and that the two verge into one another. I should meet this objection first by citing those cases in which an apparently typical "anemic" murmur at the base is accompanied by a murmur in the back, but by no other evidence of mitral regurgitation. And then, as confirmatory evidence that murmurs in the second left interspace only may have the same origin as typical mitral murmurs, I will record some observations made upon long-distance runners.

On April 19 last I had the pleasure of assisting Dr. Harold Williams of Boston in an investigation of the effects of long-distance running carried out on the contestants in a Marathon race. This is a 25-mile road race, modeled after the course run by the ancient Greek who carried the news of victory from Marathon to Athens. The results of the observations were embodied in a paper read by Dr. Williams before the last meeting of the American Climatological Association.[4] We need consider here only the effect upon the heart in causing murmurs.

The course of 25 miles was run by the winner in 2 hours 54 minutes, 38 seconds—a little better than a mile in seven minutes. During the next hour twelve other contestants finished. These men were all healthy young adults. They were examined both before and after the race. The hearts of all were normal before the race, with the exception of a varying degree of physiologic hypertrophy due to exercise. No murmurs were heard before the race. The general effect upon the men may be described as one of extreme muscular exhaustion.

Here we had a number of human beings voluntarily submitting themselves to an experiment in which we could learn the result of pure muscular exhaustion of the cardiac muscle in healthy hearts. The exhaustion of the cardiac muscle was shown by a change from strong to weak action by lowered blood-pressure, as shown by sphygmographic tracings, by rapidity of action, and by a perceptible dilatation or distension of the heart.

Of the 13 men examined after the race, 11 had developed a cardiac murmur. The murmur was in all instances systolic. In every instance it was heard in the second left intercostal space. In two cases it was confined to this space. In three others it reached along the left border of the heart to the third or fourth interspace.

In the other six it was continued beyond this area to the apex, was transmitted a short distance to the left of the apex and was audible at the mitral area in the back. In all cases the murmur was temporary and disappeared as soon as the heart had a little time to rest. It is also interesting to note that the two men who did not have murmurs were the winners, whose hearts were unusually strong, and better adapted to withstand the strain.

I think we are justified in assuming that the underlying cause of the murmur was the same in all these cases and was the weakness of the cardiac muscle from exhaustion. We may also assume that the mechanism of the production of the murmur was the same in all instances. Since, then, in the more characteristically marked cases it was a mitral regurgitant murmur we must assume that it was due to mitral regurgitation in all cases. Hence we have demonstrated by this experiment, first, that weakness of the cardiac muscle may cause mitral regurgitation, and second that a murmur thus due to cardiac weakness may exhibit all the gradations from what would ordinarily be accepted as a hemic murmur at the base to an undoubted mitral murmur at the apex.

It only remains now to show that weakness of the cardiac muscle exists in anemia, then our proof is complete that the anemic murmur is not due directly to the condition of the blood itself, but to a resultant mitral insufficiency. In the fatal cases of anemia the cardiac muscle is frequently found in a state of fatty degeneration, due to insufficient nourishment by the impoverished blood. Dilatation may or may not exist. It is inconceivable that the myocardium should remain perfectly normal through all the earliet stages of anemia and at a given point suddenly develop fatty degeneration. Various stages of impaired nutrition undoubtedly precede this. Impaired nutrition implies weakened muscular action. The mechanical results of a weakened myocardium will be the same whether the weakness is caused by poor nutrition or by tire from overexertion, as in the runners. In the runners we got mitral regurgitation, in the weak heart of anemia we should have the same condition.

It has been too often assumed that we cannot have mitral regurgitation unless we have actual dilatation of the cavity of the ventricle. Were this true, it would constitute a serious objection to our explanation of anemic murmurs, for such dilatation does not always exist. The studies of Ludwig and Hesse, however, together with the experiments of Roy and Adami, show that the complete closure of the mitral valve involves a much more complex mechanism than does the closure of the semilunar valves at the arterial orifices. The exact apposition of the mitral flaps is secured not alone by the force of the blood-pressure bringing the flaps toward each other, but by muscular contraction of the ventricular wall in narrowing the orifice and by the co-ordinated action of the papillary muscles in properly staying the flaps and preventing them from being forced too far. It is unnecessary to discuss here just what proportion of the proper adjustment is due to the muscle of the wall of the ventricle or to the papillary muscles. Probably a sufficient weakening of either force might allow regurgitation. In anemia both are probably affected, and the weakening of the muscle in anemia gives an adequate cause for mitral regurgitation, whether dilatation exists or not.

We may summarize our studies in this paper as follows:

Mitral systolic murmurs may not only be heard at the mitral area at the apex and extending toward the axilla, but also at the mitral area in the back, along the left border of the heart, in the second left interspace, at the base, and at the "valvular" area.

Anemic murmurs are not confined alone to the pulmonary area and second left interspace. They extend by varying gradations around the left border of the heart, to the apex, and to the mitral area in the back, thus gradually assuming the characteristics of a true mitral regurgitant murmur. The transmission to the mitral area in the back may exist, whether the murmur is heard at the apex or not, and even in what appear in front to be typical anemic murmurs.

We find a dividing line between the so-called anemic murmurs and the mitral murmurs.

The presumption that these different gradations in the distribution of the murmur all have a common origin is strengthened by finding these different gradations successively in the different stages of the same case. It is practically proved by finding all these gradations in healthy hearts which have been subjected to the same severe exhausting strain, as in the runners mentioned.

Weakened muscular action of the heart exists in anemia as a result of poor nutrition. Weakened muscular action is an adequate cause for mitral insufficiency, whether dilatation exists or not.

The points which are new in this demonstration are the study of the area of distribution of these murmurs rather than the point of maximum intensity, the demonstration of the transition stages between the anemic murmurs and the mitral regurgitant murmurs, the demonstration of the frequency with which anemic murmurs are heard in the back, and the importance placed upon the transmission of murmurs by pulmonary tissue.

Other observers have noted that an anemic murmur is sometimes transmitted to the mitral area in the back, although they apparently have not appreciated the full significance of the fact. Barr[5] reports that in 115 cases of simple chlorosis he found the murmur in the back as well as at the base and apex in 22 cases. He does not specify whether dilatation existed or not, and he mentions no cases where the murmur was heard in the back and at the base, but was absent at the apex.

Sansom[6] says: "I have frequently noted a systolic murmur audible at the angle of the left scapula in uncomplicated anemia. In fact the murmur in anemia can answer to all the criteria of one due to regurgitation from organic causes. Such murmurs can be experimentally induced in animals by copious bleedings." He also quotes Macalister[7] "When an animal is bled till it is feeble, a murmur indicating regurgitation from the ventricle is heard with the heart sounds. You may inject proper saline solution to make up the normal quantity of circulating fluid, but still the regurgitation occurs. As the animal makes blood again, so that its muscles are again properly nourished, the murmur disappears."

Prince[8] and McCollom[9] have made interesting observations on the hearts of healthy men, examined for positions as firemen or policemen, where the murmurs were apparently due to excitement and were temporary. The murmurs were ascribed to mitral regurgitation due to imperfect action of the cardiac muscle. The murmur is similar to that found in the long-distance runners, already cited. The point in common in these cases of excited action, in the exhausted hearts of the runners, and in the anemic hearts is the failure of the muscle to do its part toward the closure of the mitral orifice. Prince found a systolic mitral murmur in 25 of 77 healthy men, and McCollom in 27 of 200 men. In 8 of the 25 cases noted by Prince, the murmur was heard also in the sec-

ond left intercostal space "and sometimes can be traced upward to this point from the apex." In a number of cases in his table he notes that this area was not examined. "Sometimes the murmurs are heard in the back beneath the scapula—this was not always looked for." "They are sometimes heard equally loud at the junction of the fourth rib and sternum on the left side, i. e., over the mitral valve."

In reviewing the literature on this subject, it is not my purpose to give a complete bibliography—such a bibliography might well include all works which have been published on the heart. The following works have been of assistance in studying the subject:

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DISCUSSION.

DR. NORMAN BRIDGE of Los Angeles.—I do not know but Dr. Arnold, in that part of his paper which time did not permit him to read, may have referred to the point I have in mind. But as I recall it he took no account of the possibility of the air in the bronchi being capable of transmitting the heart murmurs to the back. I do not recall any one having referred to that. It may not be a matter of consequence, but it seems to me that, in auscultation of lung troubles and diseases and disorders of the pleura, we should and do take into account this element largely, and find it extremely useful from the standpoint of diagnosis, proving that sound, voice and air are transmitted through the air in the bronchi to the walls of the chest; variations of these sounds so transmitted are matters of great moment in the diagnosis; and it seems to me that heart murmurs must be transmitted too in this way as truly as by means of lung tissues. That may account to some degree for the otherwise unaccountable loudness of the mitral murmurs at the back.

DR. HORACE B. ARNOLD of Boston.—Replying to Dr. Bridge I would state that I used the term "pulmonary tissue" in the general sense. I usually include transmission of vibrations through the air in the bronchi, i. e., its divisions after entering the lung, and include it as pulmonary tissue. I consider conduction in the lung as possible by conduction through the chest wall or spine.

MYOPIA.*

OPERATIVE TREATMENT IN HIGH DEGREES THEREOF.

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The advance of civilization has brought many advantages and blessings to the human race but has also furnished extra care, extra requirements on mentality, and necessarily a decided increase in the use of the eyes, especially for near work. This constant and continued use of the eyes for near work is one of the most potent factors in the production of axial myopia. By axial myopia we mean a receding of the posterior portion of the eye, making the distance from the cornea to the macular greater than normal. This is brought about by the combined action of accommodation and convergence.

The condition is most frequently acquired by children compelled to do a great deal of studying, at close range, perhaps in very poor illumination, and also by persons engaged entirely in fine work, which they hold close to the eyes in order to get a perfect image on the retina. The accommodation is used to a greater degree than normal, and the action of the internal recti muscles is increased so far as to fix both eyes upon the near work, thereby bringing a strain directly on the sclera at the temporal side of the head of the optic nerve. Under this continued tension or stretching the sclera at this point soon assumes a condition of inflammation, and gradually we have a chronic sclerochoroiditis which is followed by an atrophy and thinning of the sclera and afterward by a gradual separation from the optic disc. In this way that portion of the eye between the optic disc and the macula glutea is weakened and is forced back by the normal tension of the eye, and we have established a change in refraction known as myopia. It is not necessary to state here that this is not the only cause of myopia. It is, however, the most frequent cause of myopia of high degrees.

Heredity plays a very important part in progressive myopia. It is true that the children of myopic parents are rarely, if ever, born near-sighted. On the other hand they have an undoubted predisposition to myopia, since they are prone to inherit the anatomical peculiarities of their parents, and if forced to continue studies or to enter occupations requiring near work they usually develop myopia.

Experiments have been made with children of normal eyes not predisposed to myopia and children with normal eyes predisposed to myopia, that is, whose parents one or both have been myopic, with the result that the greater percentage of the latter under close work in school have developed myopia.

* Read before the Illinois State Medical Society, May, 1899.

Dr. B. Behim Schwarzback has reported in the *British Medical Journal*, examinations of the eyes of 1853 black people, mostly children, natives of towns in the middle province of South Africa, with the astonishing result that only 87 out of this number had weaker sight than the normal sighted Caucausian, the others possessing acuteness of vision equal to or greater than the normal sight of the European. The subnormal sight mentioned was due to myopia acquired at schoool, thus proving that the detrimental causes which produced short sight in children of the white race have the same effect on the optic organ of the dark race.

If it were possible to have made an examination of the eyes of the aborigines of this country, no doubt the percentage of acuteness of vision would have been similar to this result, as in our day the great acuteness of vision of the American Indian is well established.

Since in this paper we shall discuss operative treatment of high degrees of myopia, we will not refer to myopia of less than 12 diopters, further than to suggest a régime for myopia of less degree. How often the oculist hears the parents or guardians of children who come under his care remark that the child is a regular bookworm and reads continually at every opportunity, and prefers reading to playing out of doors with other children. Now, the reason for this will, with very few exceptions, be found in the fact that the child is myopic or near-sighted and not overstudious, and derives enjoyment out of reading because he can see to read and cannot see in the distance well enough to enter in the outdoor pleasures of other children of his age. The parents of these children, laboring under the impression that they are very studious and exceptionally bright—and they are brighter than most children of their age—will strain a point to give them superior educational advantages and fit them for some occupation that will require life-long use of the eyes for close work, and think they are doing their duty. The fact is they are putting that child in the best possible position for him or her to develop a progressive myopia of high degree and possibly entire loss of useful vision, if not complete blindness. These children should be carefully refracted, deprived of as much reading as possible and placed in some occupation best calculated to avoid close application with the eyes or much work in a stooping position.

Operative treatment of myopia consists of the removal of the lens from the eye, and by so doing we must consider the following: 1. We reduce the myopia from 10 to 16 diopters, according to the eyes of the patient. 2. We improve distant vision and impair near vision. 3. We destroy the power of accommodation. 4. We stop the progress of myopia. 5. We materially lessen the probability of complete blindness resulting from choroiditis or detachment of the retina.

For people who are compelled to do near work the operation offers few advantages, but there are many who will derive great benefit and advantages from the operation. The operation of removal of the lens for myopia has been performed with gratifying results many times in Germany and Austria, frequently in France and England, and a comparatively few times in the United States. It is true we do not find as large a percentage of myopia in this country as in Europe, but there are very many people in America who would derive great benefit from the operation. The first suggestion of operative treatment for myopia is found in the writings of Abbe Desmonceaux in 1776, quoted by Otto. Adolph Weber, in 1858, at the Ophthalmological Society of Heidelberg, suggested the removal of the lens for myopia and stated that he had frequently performed the operation with success. In the discussion which followed Von Graefe spoke against it. Six years later, Donders ridiculed it in his writings. Nothing more was heard of the operation until Fukala published his paper in 1889. Vacher, before the French Society of Ophthalmology, on "The Treatment of Progressive Myopia and the Prevention of Separation of the Retina by the Extraction of the Transparent Lens," claims to have made the operation before those of Fulaka; however, Vacher brought forward the removal of the transparent lens as a means of suppressing the myopia. He gave the results of seven operations in patients, all of whom were over 20 years of age, with myopia of 15 diopters and upward, and marked or advancing staphyloma.

Pflueger, before the congress at Rome in 1894, stated that he had performed discissions of the lens in one eye on thirty patients affected with high myopia. The degree of myopia varied from 10 to 20 diopters, the age of the patients from 10 to 40 years. In all the cases sharpness of vision was increased. In many cases it was doubled and even tripled. No evil results occurred in any of his cases.

Von Hippel, in a paper read before the Ophthalmological Society of Heidelberg, reports his results of 60 operations, the degree of myopia varying from 10 to 20 diopters, and the ages of the patients from infancy to 50 years. He found that choroidal lesions, even when extensive, are not aggravated by operation. In all cases discission was practiced after an installation of atropin. At the expiration of about a week a softened mass of lens was evacuated without iridectomy.

In some instances vision acuteness rose to $^6/_6$, and in most cases it was from 4 to 6 times better than before the operation.

Wrag reports 123 cases of myopia, 246 eyes, with especial reference to points upon which the advisability of operation of removal of the lens was based. Of the above number 38 cases including other cases of detached retina had vision less than $^6/_{36}$ in one eye and 10 had less than $^6/_{24}$ in both eyes. He considered that his figures admitted of three deductions: that the vision was invariably less in the fourth decade than in the third; that retinal detachment is less to be feared than the changes in the retina and choroid; and that it is not necessary to regard every myopia of 12 diopters and upward as hopelessly drifting to a detached retina and blindness.

Julius Archer has collected reports from various quarters, of about 400 cases which have been operated on up to 1895. In most of the cases the myopia existing at the time of the operation was arrested in the eye operated on, during which time it continued to advance in the other eye on which no operation had been performed.

Goldzieher said that the operation was a wondrous advance in ophthalmology and in most of his cases perfect vision without glasses was obtained.

Professor Euchs of Vienna, discussing operative treatment of myopia, says: "In all people where a high degree of myopia exists an application of lenses, even when the retina and choroid are sound, is proved a practical failure." He suggests the removal of the lens as a "radical cure." Since that time he has shown many excellent results that have convinced oculists of its utility.

F. Otto reports the result of 85 cases of high myopia operated on by discission, with subsequent removal of the lens by linear operation.

Professor Noyes remarks of myopia, reviewing over

1700 cases operated on in private practice, that it is found that 7.6 per cent. exceed 10 diopters. In these it was rare to find vision above .4; in many instances it was much less.

In operating on such cases two serious considerations arise: 1, an intraocular hemorrhage; 2, detachment of the retina. A third possibility cannot be entirely ignored, viz., a low grade of iridocyclitis, produced by traumatism causing turpidity of the vitreous and defeating the purpose of the operation. While hemorrhage may be spontaneous it is not induced so readily by needle operation as by section, for extraction and published reports do not specify this accident. On the other hand detachment of the retina is the misfortune chiefly dreaded.

Darier, before the International Congress of Moscow, gave an account of 142 cases operated in his practice, in 85 per cent. of which a distinct improvement in vision could be shown. In 10 per cent. vision was stationary and in 5 per cent. the eye was lost. This occurred in three cases from an infectious process and in four cases from the detachment of the retina.

According to Distler the operative treatment of high myopia is almost without danger. The acuteness of vision is improved and binocular vision is restored. Loss of accommodation is not a serious disadvantage. The danger of hemorrhage or detachment of the retina is not lessened by the operation, nor is it increased.

Gelpke and Bihler operated on every myope whose vision could not be improved sufficiently with glasses. They have operated on 74 eyes, with bad results in 3.4 per cent. The average increase in acuteness of vision was fivefold.

Meighan, Sweigger, Alt of St. Louis, Sattler, Panas, Lindsay, Johnston, Prof. Szili, Drussart, Morren, Edward Jackson, Frost, and others have reported cases of operation with a great percentage of improvement in vision and decrease in development of change in the fundus.

Grosz thought the operation should still be held in reserve and that we are not justified in operating in every case with confident hope of uninterrupted success. Most operators advocate operating first by discission and subsequently by extraction of the opaque lens mass by linear incision without iridectomy. Some, however, operate by a simple repeated needling.

Dr. H. E. Stafford reports three cases of extraction of the clear lens for myopia. He made an ordinary extraction without any iridectomy, lacerating the capsule of the lens with the point of the knife as it passed across the anterior chamber. The lens was delivered by the lid. The results of these cases fully convinced Dr. Stafford that the operation should be done without attempting artificial ripening.

In my own experience I have operated upon several eyes, two by dissolution of the lens by needling and five by discission and subsequent extraction of the soft lens without iridectomy and am decidedly in favor of the latter operative procedure for several reasons: 1. The length of time required is in some cases less than one-third of that required by the first procedure, which is a very important point in your consideration of the patient. 2. There is less danger of adhesions forming between the iris and the zonula. 3. There is less danger of setting up a low grade of iridocyclitis from continued pressure of the lens substance on the ciliary body.

The results I have obtained in my operations have been highly satisfactory to me and to my patients, and I do not hesitate to advise operation in cases where myopia exceeds 12 diopters in either eye, in patients between 10 and 30 years of age, confidently expecting that I shall materially improve the vision of by far the greater percentage operated on.

CASE 1.—Miss O., aged 12 years, a school-girl, with obscure family history, was seen in March, 1897. Vision in right eye was 10/200, left eye 2/200. Ophthalmoscope showed marked staphyloma posticum in both eyes with chororetintis more marked in the left, refraction —14 diopters in right and —16 diopters in left. Glasses did not materially improve the left eye and the best vision obtainable in the right was 20/100. The patient was unable to perform near work, with or without correction, with left eye on account of condition of fundus. Atropin was instilled in the left eye and discission was performed under cocain anesthesia, followed by cold applications made to the eye to prevent inflammation from too rapid expansion of the lens matter. Four needlings were necessary to complete absorption, and a period of five months intervened before the pupilary space was clear and the eye pronounced well. Examination of the eye in July, 1897, showed the vision to be 20/80 or 1/4, a very satisfactory increase from 1/100 before operation. The inflammation of the fundus had almost disappeared and patient was able to read fine print with a +.5 sphere. Examination of the eyes in March, 1899, shows no change in the left but vision of the right eye is only 5/200, due to increased fundus changes.

CASE 2.—Mr. F., aged 18 years, a schoolboy, with normal heredity, was seen in April, 1897. He had myopia of 18 diopters in the left eye, 23 diopters in the right, and posterior staphyloma in both eyes. No further fundus changes were present. Vision O.D. 5/200, O.S. 4/200. Best vision obtainable with glasses was 20/80 in right with —15 diopters and 20/100 in left with —18 diopters. Left eye operated with discission April 20, followed by linear incision and extraction of softened lens mass ten days later. Some lens matter remained in eye and needling was done five weeks later. Three months after operation vision was 20/30 for distance and patient was able to read with —3D. Right eye was operated on in similar manner on September 10 by discission and later by extraction of lens with no final needling required. Vision in this eye was 20/40+ and patient could read 20/30+ with —1.50, axis 120° and fine print with +2D. Patient had binocular vision after operations.

CASE 3.—M. G. F., a bookkeeper aged 22 years, was seen in June, 1898. His father was myopic. The patient had myopia of 8 diopters each eye. Ophthalmoscope showed —15 diopters in each eye with posterior staphyloma and hyperemia of retina. Vision in each eye was 5/200. Vision in right eye improved to 20/100 with —15D. Vision of left eye improved to 20/100 with —12 ⊃, —3 cyl., axis 180°. Patient's right eye operated first, followed two months later by operation on the left—both by discission and extraction of lens mass without iridectomy. Recovery was uneventful except for formation of secondary cataract in each eye which required needling. Patient had 20/40 vision in each eye after operation and was able to do all ordinary work with glasses, but required a +3 in right and +4 in left for reading. A peculiar feature of this case was the disappearance of 3 diopters of astigmatism from left eye after operation.

CASE 4.—Miss M. J., aged 11 years, a schoolgirl, with obscure family history, was seen in December, 1898. Ophthalmoscope showed myopia of 10 diopters with right eye, and 16 diopters in the left. There was beginning posterior staphyloma in the right eye, marked in the left. Vision O.D 10/200, vision O.S. 4/200. Vision O.D. 20/30 with —8D. Vision O.S. 20/200 with —14D. The left eye was operated on by discission and lens mass followed to absorb. Five needlings were necessary for complete absorption and nearly six months' time elapsed. The best vision obtainable in this eye was 20/60—and patient has a slightly irregular pupil. She is able to read wth a +5D. The right eye will be operated on if the myopia increases.

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DISORDERS OF NERVOUS SYSTEM*

ACCOMPANYING GYNECIC DISEASES.

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MONTGOMERY, ALA.

The progress in the science of medicine precludes the possibility of the entire field being properly surveyed by one mind, therefore specialists are necessary for the satisfactory cultivation of its soil, much of which remains yet to be upturned by the ploughshare of research. No one, however, is fitted for a specialist who is not well grounded in the general subjects of anatomy, physiology and pathology, for a clear appreciation of the relationship and interdependence of the various tissues of the body is necessary in order to judge of the effect produced on the function of structure of one tissue by disease of another. This being manifestly important in reaching a correct diagnosis, Battey's and Tait's opinion that the removal of normal ovaries would cure nervousness, not only had no physiologic justification, but showed a total disregard for the general principles of physiology. I feel safe in saying that our present knowledge will not tolerate a suggestion that the normal function of any organ can disorganize that of another, notwithstanding the seeming exception of vomiting in pregnancy.

Viewing the human system as a most delicate and complicated piece of machinery, its cells differentiated into many groups called organs and glands, it is readily understood how the impairment of one or more of the organs may derange the entire system. I recognize, however, the fact that the female genital tissues are not necessary to individual life and, therefore, an exception may be taken in their case; nevertheless, I believe the connection between these parts and the rest of the system is so intimate and intricate as to justify the opinion that gynecic diseases and injuries are primarily responsible for many nervous disorders. I am free to admit that abnormal nervous manifestations may present themselves in a patient with disease of some portion of her genital tissues, without there existing the relationship of effect and cause; and I confess that I know of no way of reaching a positive conclusion as to when the gynecic disease is producing the nervousness.

Turning our attention to the nervous system, we find a marvelous anatomic structure, surpassed only by its wonderful physiologic action. Its cells possess a most delicate sensitiveness for the perception of impressions or impulses, an inconceivable capacity of association for their analysis, and an incomparable retentive force for their preservation. There exists between the cells a perfect state of equilibrium for uniformity in action. While these faculties are, practically, the possession of inheritance, the degree of perfection or accuracy with which the normal cell functionates is in proportion to its vitality, which is largely dependent on the quantity and quality of nourishment assimilated. As for the quantity, I hardly think the withdrawal of nutriment from the nerve-cells can directly and alone cause a disorganization of the functions of the cerebral cells, to the degree called insanity, but a large number of the cases of so-called nervousness are produced in this way. In regard to the quality of nutriment certain toxic principles entering the circulation and carried in sufficient quantity to the psychic cells will overthrow their power of correct analyses or reasoning, and cause what I understand to be functional insanity. There is another factor in the production of nervousness, by gynecic abnormalities, which I regard as too potent to be lost sight of, viz., the moral shock or effect produced on a patient by the recognition of the existence of an abnormal condition of her genital parts. I have seen this most severe in old complete lacerations of the perineum, where the total loss of the restraining function of the anal spincters acted as almost a constant reminder to the patient of her unfortunate condition.

A few words at this point may not be amiss on how impressions and conclusions are retained by the nerve-cells. If we admit, as we must, that these cells receive impressions, convert them into ideas and retain not only the primary impulse but also the idea, we must be prepared to accept the theory, as the most reasonable one so far presented, that there is produced a material change in the organized matter of each cell, every time it responds to an impulse, be it normal or abnormal impulse, and in accordance with the laws of direct cellular heredity, this material change passes, with decreasing distinctness, unless there is a repetition of the primary stimulus, through generation after generation of cells, until it is finally lost. While it is difficult for us to conceive of a material change in the nerve-cells to represent every experience, conscious, or unconscious, had by man, yet this is no harder task, nor is it more incredible than the crediting in the ovum of the mother and the spermatozoa of the father, some material representative of every class, if not of every cell, in the organisms of these respective individuals, and to deny this would be to destroy the theory of physiologic heredity and leave us in the confusion of ignorance. If we are correct in regard to the manner in which nerve-cells retain impressions and ideas, we have a physiologic explanation for the prognoses in nervous derangements, being largely determined by the length of time the disorder has existed.

However much we would like to prosecute our studies in this inviting field, we must forego our inclination, and approach nearer the heart of our subject by considering the nervous connection between the genital parts and other tissues. Byron Robinson says the uterus has twenty or more nerve cords running to the solar plexus, and that it, of all organs, "has the most intimate and profound connection with the cerebrospinal axis and abdominal brain." "That the connection of the genital and urinary system with all the great nerve-centers, is intimate and very large," I think anatomist and physiologist have proven beyond all question. If this is true, we have only to call to mind the laws of reflex action to understand how an irritation can pass from the genital system, through the hypogastric to the solar plexus, and by it be sent, with more or less force, over the numerous nerve-tracks to the viscera. As every impulse passing over a

* Read before the Alabama State Medical Association, April, 1899.

centrifugal nerve causes the cells which the nerve supplies to perform their characteristic function and as no cell, or set of cells, can properly discharge its duty without a period of rest, therefore, a more or less constant irritation from diseased genital tissue, traveling, as indicated above, to the viscera, will sooner or later overtax the cells concerned in the preparation of food, and thus cause an improper supply of nourishment to be furnished for assimilation. Being acquainted with the intimate connection between the sympathetic and the cerebrospinal nervous systems, and knowing the readiness with which an irritation may be transmitted by reflex action from one to the other, should we not be inclined at least to speculate on the possibility, if not the probability, of an irritation from the genital tissue traveling through the hypogastric or solar plexus to some of the higher cells of the cerebrospinal system, disorganizing their function to the extent of causing objective abnormal nerve manifestations?

With this mere summary of what appear to me to be plausible theories, I will report a few cases which have been under my care.

CASE 1.—Mrs. B., white, multipara, 40 years of age, nervous and eccentric, family history good, presented endometritis, incomplete laceration of the perineum of several years' standing, and relaxation of the posterior vaginal wall. Curettage, posterior colporrhaphy and perineorrhaphy were performed. The bowels were moved on the second day. On the third day nervousness began to increase, and continued to do so for a week, at the end of which time she was quite insane; suspicious of her family and attendants; speech irrational and disconnected; unable to recognize her surroundings; sleep little and disturbed. Bromid of soda, chloral and sulphonal were given at different times to promote rest, but had little or no effect Her suspicions of evil designs on the part of her attendants caused a great deal of difficulty in giving nourishment, to say nothing of medicine. Efforts were chiefly directed toward keeping the skin, kidneys and bowels active. Digestion was very much impaired from the beginning. At the expiration of four weeks she began to improve and made a rapid and complete recovery; result of operation good.

CASE 2.—Mrs. P., white, widow, multipara, 38 years of age, anemic and nervous, family history negative as to nervous disease, had complete laceration of the perineum ten years previous to coming under my care. A fibroid tumor the size of an orange was present in the soft tissue between the uterus and bladder. Menorrhagia and metrorrhagia were severe. Curettage and removal of tumor through the vagina was done. Ten days afterward the perineum was repaired. The bowels were moved by purgative and enema, on the third day. Nervousness began to increase before the bowels acted and continued to do so until she became entirely irrational. The bowels were kept active, and nourishment and tonics freely administered. In the third week some mental improvement was noticeable, and by the sixth week she had entirely recovered. The result of the operation was good. The patient has gained in weight and at this time is in perfect health.

CASE 3.—Mrs G., white, multipara, 27 years old, anemic and nervous but with no family history of nervousness, was reported to have had "several fits." The perineum was completely lacerated at the first confinement, six years ago, but she had been in good health up to that time. Four unsuccessful efforts to repair laceration were made before she came under my care. I repaired the tear and the third day afterward moved her bowels. Her nervous condition showed a decided increase on the fifth day, and on the tenth day she was thoroughly irresponsible; constantly complained that some member of her family was dead; would get out of bed immediately on being left alone. Bromid of soda and sulphonal were used to cause sleep, but had no effect. The bowels were kept open and stimulants and nourishment freely administered. Digestion was very much impaired before and after operation. Mental improvement began at the end of the third week and continued to a complete and hasty recovery. The result of the operation was all that could have been desired. When last heard from her physical and mental health were good and there have been no more fits.

CASE 4.—Mrs. S. J., white, widow, multipara, 31 years old, with no family history obtainable, anemic and nervous, presented endometritis, growths in the vagina and bladder, hemorrhoids and complete laceration of the perineum. I curetted, removed the growths from the vagina and bladder and tied the hemorrhoids, and the patient progressed nicely. At the end of the second week, I repaired the lacerated perineum. The bowels were moved, as is my custom in these cases, on the third day. Nervousness was decidely worse on the fifth day and on the ninth she had hysterical coma. The abnormal nervous manifestations continued, with more or less violence, two weeks, when change for the better was recognized. The same general plan of treatment was adopted in this as in the preceding cases and recovery was complete in seven weeks. The perineum united perfectly and she has experienced good health since she was dischargd.

CASE 5.—Mrs. S., white, married, 30 years old, multipara, gave history of her father, a drunkard; mother weak-minded, and one brother, about 20 years of age, very peculiar. The patient was anemic and nervous; her digestion was very poor; she had complete laceration of the perineum, bilateral lacerated and hypertrophied cervix uteri, and endometritis. I curetted, repaired the lacerated perineum, and amputated the cervix. This patient went through the same experience as those above reported. Her general health continued to improve after her return home, but her nervousness remained practically the same as it was before she was operated on. I lost sight of her for twelve months or more, but during the latter part of last year she was brought back to me in a very much impaired mental and physical condition, when I prescribed a tonic for her and advised that she be kept under close observation or sent to an insane asylum.

Here we have five patients, to all appearances similarly affected, and four recovered and are now enjoying good health, while the fifth improved in physical health, but experienced no decided or lasting effect on her nervousness, and is now, after a little more than a year, presenting alarming signs of complete mental derangement. What were the factors in these patients acting as causes in the production of the nervousness before and the acute insanity after operation?

1. The knowledge of the existence of abnormal pelvic condition caused a more or less continued mental worry, which depressed the general vitality, and the function of digestion shared in the loss of force.

2. By reflex action abnormal nerve impulses were sent from the seat of the primary trouble to the abdominal viscera, disturbing their function more or less.

3. The slight mental and physical shock produced by the operation further lowered the vitality and impaired the power of digestion.

These all combined rendered the intestinal tract incapable of doing its work, as a result of which fermentation took place in the intestines, producing toxic princi-

ples. These toxic principles, being conveyed in sufficient force to the already anemic psychic cells, rendered them incapable of correct reasoning. Another factor in the fifth patient was the inherited nerve weakness from both parents, which I believe is responsible for her present condition.

CASE 6.—Mrs. J., white, married, 35 years of age, multipara, with good family history, had endometritis, bilateral lacerated and hypertrophied cervix uteri, and was anemic and nervous. She also suffered with dyspepsia and frequent attacks of intestinal colic, and experienced no appreciable improvement from several years of medicinal treatment. I advised curettage and amputation of the cervix, telling her, however, that I could not promise that the operation would prevent the intestinal colic; I could only say that it would relieve the local condition, which was probably partially responsible for her ill health. She submitted to the operation and remained at the infirmary about four weeks. Since her return home, several months ago, she has improved in general health and has only had one attack of colic, whereas, before the operation she had them almost daily.

This is a case in which I think we are perfectly justifiable in saying that impulses were sent from the diseased uterus through the hypogastric to the solar plexus, and from the latter to Meisner's and also to Auerbach's plexus, the former regulating the secretions and the latter the peristalsis of the intestines. Thus both these functions were disturbed, causing spasmodic intestinal pain and imperfect digestion of food. An improper supply of nourishment being furnished the system, anemia and nervous irritability developed.

CASE 7.—Mrs. P., white, married, multipara, 32 years old, but very much reduced in health, was extremely nervous and irritable. She had one sister insane. Two years previous to her coming to me she had been confined in an insane asylum for three months. Vaginal examination revealed purulent ovaries and tubes, which were subsequently removed, without liberating the pus. The second day after the operation she became violently insane, fought the nurses and made every effort to get out of bed, which was prevented only by force. An attendant had to be constantly by her to prevent her doing herself harm. No suppuration followed the operation and no elevation of temperature, except immediately following her struggles to get out of bed. Her mental condition showed signs of improvement in the fourth week, and at the end of the seventh week was practically as it was before the operation. Her general health improved very much. When last heard from, eight months after her discharge, she had again lost her mental faculties and her husband was preparing to send her to an insane asylum.

CASE 8.—Miss W., white, 22 years of age, father dead, and mother an epileptic mentally incapable of caring for herself, was "led astray" and contracted gonorrhea. She had been confined to her bed several months previous to my being called to see her, was very much emaciated and complained of pain in her pelvic cavity. On examination I found her pelvis filled with an immovable mass. As the only chance of saving her life, I proposed abdominal section, which readily received the sanction of her physician and herself. I opened the abdomen and found, as I had apprehended, numerous and dense intestinal and omental adhesions, which, on being separated, revealed a number of pus-pockets. The ovaries and tubes were suppurating foci, and I removed them, washed the pelvis out and inserted a gauze drainage. The patient made an uninterrupted recovery and was sent home. Two or three weeks later I was summoned to see her and she informed me that after eating she experienced "a lumping and griping in the lower part of her adbomen." This gradually increased, until there was almost a complete intestinal obstruction. I advised that the abdomen be opened for the purpose of relieving the intestinal obstruction by destroying the adhesions, which I was confident were responsible for the trouble. I knew that more adhesions would form, but hoped they would not constrict the bowels. After entering the abdomen and separating the constricting bands, I examined the ligatures placed on the pedicles at the previous operation and found no trouble from them. The patient made a good recovery and went home very much improved in health, and I am reliably informed that she continued in very good condition for a year or more, when she became acutely insane and died within a few weeks.

Individuals who, by reason of inheriting nerve-cells of limited capacity, require, when in comparatively good health, a discharge of the full force of their psychic cells to perform their duties, are liable to have their mental functions disorganized by any conditions which tend to lower their vitality. Every major operation is attended with more or less shock, and the cessation—natural or artificial—of the function of the ovaries produces a decided impression on the nervous system. Therefore the operation, in the last two cases, may have added to the already present tendency to mental incapacity; nevertheless, they were operations of necessity, and ordinarily, by removing the condition which was causing the ill health, should have ultimately strengthened the capacity of the psychic cells to discharge their duty.

Correspondence.

Blackmailing.

ST. LOUIS, July 6, 1899.

To the Editor:—There is a crying evil prevailing in the United States against which no remedy has yet been found. It is sporadic in character and unsparing of the individual singled out for its victim. This evil or curse is known as "blackmailing," and it is an evil by the side of which assassination or highway robbery is a mere bagatelle. The watchword of the brave is, "thy purse or thy life," the watchword of the blackmailer is, "thy money or thy character," which to many is more precious than life.

The chosen victims of the blackmailer are chiefly medical men, who are singled out under a flimsy plea of damages for malpractice. The nominal plaintiff can not possibly attain his nefarious object without an affiliation with an attorney, whose only consideration usually is a contingent fee. Such attorneys are happily rare, but moral perverts can be found in every calling, and are well known to every searcher for such material. These psychomoral freaks are shrewd enough to circumvent unwary, unsophisticated persons to pose as plaintiffs and to load them with the odium of such criminal proceedings, making them responsible for all expenses, but keeping for themselves the pelf arising therefrom.

Numerous victims are met with in all parts of this country. The chosen unfortunate physician would sometimes rather buy off or make a compromise of the matter than endure the annoyance, expenses and blackguardism incident to such law suits. Occasionally these worthies strike a rock and are stranded, but they do not remain inactive long, and soon are in chase of another victim.

But why do they remain unpunished? Did they not try to obtain money under false pretenses? Did they not cause great expense, inflict untold mental sufferings? Did they not defame

and outrage with their spurious charges? It would be interesting to sociologists and pathologists if a posthumous examination could be made of the contents of the blackmailer's cranium. Many of the cerebral central areas, as those of affection, honor and benevolence, would, no doubt, be found poorly developed, while those of greed and rapacity would be abnormally prominent. With such physical degeneracy they would be incapable of doing the right thing, except by chance. An asylum for the demented should be their habitat. But if the structures of the brain are found normal, their malefactions are due to psychic and moral perversion, and the precincts of a prison should be their dwelling place. They should be under guardianship, either in a penal or an eleemosynary institution, and should never be suffered to go about without surveillance.

S. POLLAK, M.D.

Hemophilia.

CLEVELAND, OHIO, July 7, 1899.

To the Editor:—In the JOURNAL of June 24 (p. 1449), relating to an article read by Dr. G. W. Wagner, before the Detroit Medical and Library Association, on "Hemophilia," I notice he regards "exposure of bleeding wounds to the air" by him as probably original treatment. Perhaps it is original, but this means of controlling capillary oozing in these cases was suggested to me about twenty-five years ago by the late Dr. Isaac N. Harris, professor of physiology and histology in the Western Reserve Medical College. I do not know that it was original with him. This procedure proved efficacious in more than one instance to my knowledge. Respectfully,

A. J. COOK, M.D.

Current Medical Literature.

Titles marked with an asterisk (*) are noted below.

American Journal of the Medical Sciences, July.

1.—*Anomalous Eruptions in Typhoid Fever. J. M. DaCosta.
2.—*Some Remarks on Typhoid Fever Among Our Soldiers During the Late War with Spain. Victor C. Vaughan.
3.—*Coexistence of Carcinoma and Tuberculosis of the Mammary Gland. A. S. Warthin.
4.—*Concerning Kernig's Sign in Meningitis. James B. Herrick.
5.—On Astasia-Abasia, with a Case. J. C. Wilson.
6.—*Eversion or Turning Inside Out of Sac of a Cystonephrosis as an Aid in Operating on Renal End of Ureter and on Partition Walls Between Dilated Calices. Christian Fenger.
7.—*Pulmonary Tuberculosis with Intercurrent Typhoid Fever Complicated with Pneumonia—Triple Infection. Augustus A. Eshner.
8.—Case of Mitral Stenosis, with Fever (Non-Malarial) of Relapsing Type. Frederick P. Henry.
9.—Comparative Action of Green and Brown Strophanthus Seeds. Henry H. Rusby.
10.—Critical Summary of Literature on Tuberculosis of Walls of Blood-vessels and Production of Miliary Tuberculosis. Harvey R. Gaylord.

Medicine (Detroit), July.

11.—*Alkalinity of Blood in its Physiologic and Pathologic Relations. J. H. Salisbury.
12.—*Cystitis Faveolata. F. Kreissl.
13.—Acute Anterior Poliomyelitis. Elbert Wing.
14.—*Protargol in Gonorrhea. Wm. L. Baum.
15.—*Floating Kidney with Intermittent Hydronephrosis. Gustave Kolisher.
16.—*Hot-Air Cauterization in Lupus Vulgaris, After Method of Dr. Hollaender. Jacob Frank.
17.—*Caput Obstipum Musculare. M. L. Harris.

New Orleans Medical and Surgical Journal, July.

18.—Ocular Therapeutics. Henry Dickson Bruns.
19.—*Principles of Scientific Sanitation and Quarantine. Edmond Souchon.
20.—*Case of Leucemia, Splenic Myelogenous Variety. Otto Lerch.

Brooklyn Medical Journal, July.

21.—*Mental Suggestions and Charlatanism. P. Scott.
22.—*Diagnosis of Hip-disease. C. D. Napier.
23.—History of a Case of Cut Throat. Henry Wallace.
24.—Pelvic Abscess in Women. Alexander Ree.

Buffalo Medical Journal, July.

25.—*Plea for the Unification of Medical Societies. Z. J. Lusk.
26.—*Prophylaxis in Obstetric Practice. William G. Taylor.
27.—Relative Death-rates from Cancer and Consumption. John H. Pryor.
28.—Relation of Medicine to Civilization. John O. Roe.

Ophthalmic Record (Chicago), July.

29.—*Report of Case of Accidental Inoculation of Eyeball with Vaccia Virus. S. Potts Eagleton.
30.—Septic Thrombosis of Cavernous Sinuses. William E. Bruner.
31.—*Percentage of Color Blindness to Normal Color Vision as Computed from 308,939 Cases. Joseph A. Mullen.
32.—Case of Amblyopia Due to Use of Methyl Alcohol. H. Moulton.
33.—Foreign Body in Iris. George H. Bicknell.
34.—*Question of Operation on Injured Eye in Sympathetic Ophthalmia. Robert Sattler.
35.—*Mydriatic Action and Value of Euphthalmin. Edward Jackson.

Memphis Lancet, July.

36.—Galvanocaustic Radical Treatment of Prostatic Hypertrophy. F. Kreissl.
37.—*Vomiting of Pregnancy. G. G. Buford.
38.—*Surgery of Strabismus. C. H. Beard.
39.—Ludwig's Angina, with Report of Cases. R. W. Tate.
40.—*Post Hoc, Propter Hoc. W. J. Chenoweth.

Medical Register (Richmond, Va.), June.

41.—*Mastoiditis: Diagnosis and Treatment. John P. Davidson.
42.—Evolution of Therapy. Simon Baruch.
43.—*Etiology and Treatment of Alveolar Hemorrhage. John H. Hartman.
44.—Peculiar Case of Twin Birth. J. B. Fisher.

Philadelphia Monthly Medical Journal, May.

45.—*Eclampsia. Thos. Snyder.
46.—*Some Facts and Theories Relating to Autointoxication. R. H. Chittenden.
47.—*Indigo Group in Relation to Internal Medicine. F. Leonard Vaux.
48.—*Sarcoma of the Thyroid Gland. C. G. Cumston.
49.—Chemico-legal Testimony: Strychnin. G. H. Meeker.
50.—Hay Fever. C. M. Cobb.
51.—Catgut Sizes. H. B. Besemer.
52.—Family Sanitarium for Pulmonary Tuberculosis. A. Davis Hard.
53.—*Case of Multiple Arthropathy. F. E. Simpson.

St. Paul Medical Journal, July.

54.—Some Problems of Professional Life and their Relation to Success in Practice. H. A. Tomlinson.
55.—*Ectopic Pregnancy. A. McLaren.
56.—*Catgut. Eduard Boeckmann.

Tri-State Medical Journal and Practitioner (St. Louis), June.

57.—*Surgical Clinic on Diseases of Children. Chas. R. L. Putnam.
58.—*Uric Acid Diathesis and its Particular Lesions in the Mouth. W. F. A. Schultz.
59.—*Rapid Treatment of Varicose Ulcers of the Leg. Wm. D. H. Brown.
60.—Paracelsus. Jas. M. Ball.

North Carolina Medical Journal (Charlotte), June 20.

61.—Continued Fevers of North Carolina. B. K. Hayes.
62.—Typhoid Fever as Met With in Fayetteville and Surrounding Country. J. F. Highsmith.
63.—*Propagation of Typhoid Fever and other Infectious Diseases. G. A. Ramseur.

Canadian Journal of Medicine and Surgery (Toronto), July.

64.—*Report of Laboratory of Provincial Board of Health. John J. Mackenzie.
65.—Medico's Visit to Richmond, Va. W. A. Young.
66.—Constipation; Some of its Effects and its Non-Medicinal Treatment. E. S. Pettyjohn.

Medical Summary (Philadelphia), July.

67.—Cholera Infantum. Wm. H. Vail.
68.—Treatment of Erysipelas—Report of Case. Chas. E. Tucker.
69.—*Does Tobacco Cause Amblyopia? W. H. Morse.
70.—Thermic Convulsions of Children. A. J. Mann.
71.—Chips from my Workshop. Jos. Adolphus.
72.—Medical Legislation. J. W. Lockhart.

Kansas City Medical Index-Lancet, July.

73.—Empiricism in Missouri and How to Suppress it. E. L. Priest.
74.—Vesicovaginal and Vesico-Uterine Fistula. H. E. Pearse.
75.—Reports of Cases from Practice. A. B. Freeman.
76.—Visit to State Medical Association of Texas. F. B. Tiffany.
77.—Diphtheria and Intubation. C. C. Furley.
78.—Review of Recent Advances in our Knowlege of Anatomy and Physiology of Nervous System. John Punton.

Southern Practitioner (Nashville), July.

79.—Addison's Disease, with Report of a Case. Perry Bromberg.
80.—General Remarks on Pathology of Atheroma. Wm. H. Witt.

Medical Herald (St. Joseph), June.

81.—*Use of Force for Reduction of Fractures of Lower End of Radius, with Report of a Simple Method for Its Application. D. Richardson.
82.—Chronic Nasal Catarrh. P. I. Leonard.
83.—Remarks on Neurasthenia. John Punton.
84.—Some Experiences with Intubation. F. E. Sampson.
85.—Case of Embolism of Arteria Centralis Retinæ of Right Eye. Flavel B. Tiffany.

New England Medical Monthly and Prescription, July.

86.—*Clinical Report on Three Cases of Unusual Interest. Thomas H. Manley.
87.—Some Clinical Experiences with Tyree's Antiseptic Powder. R. Frank C. Browne.
88.—Medicine—Antitoxin—The Army—La Grippe. C. B. Newton.
89.—Cases of Psoriasis, Hepatic Torpor, Gout and Corpulency. C. H. Powell.
90.—Treatment of Carbuncles. M. P. Creel.
91.—Tissue Builders. N. M. Baskett.

92.—Physical Education. C. P. Robbins.

Medical Age (Detroit, Mich.), June 25.

93.—*Etiology of Rheumatic Fever. T. Wertz.
94.—Obscure Case of Abdominal Pain Complicated with Morphin Eating. Wm. Pepper.
95.—*Essential Points in Treatment of Diphtheria. James G. Brubaker.

Pediatrics (N. Y.), July 1.

96.—Hydronephrosis, Pyonephrosis—Nephrectomy in a Boy, Aged 4½ Years. Emery Marvel.
97.—*Researches in Indicanuria and Phenoluria in the Digestive Intoxication of Children. E. Thomas.
98.—*Notes on a Rapidly Fatal Case of Tetanus. Stanley M. Ward.

American Practitioner and News (Louisville, Ky.), June 1.

99.—*President's Address. David Barrow.
100.—*Indications for Enucleation. T. C. Evans.

New York Medical Journal, July 8.

101.—*Report of Three Cases of Multiple Pistol-shot Wounds of Intestine, with Remarks. George Woolsey.
102.—*Clinical Study of Twenty-four Cases of Paralysis Agitans, with Remarks on Treatment. Joseph Collins and L. J. J. Muskens.
103.—*Etiology of Texas Cattle Fever, with Special Reference to the Recent Hypotheses concerning the Transmission of Malaria. Theobald Smith.
104.—Endoxin in Pediatric Practice. Gustavus M. Blech.
105.—*The Doctor as a Carrier of Disease. John T. Howell.

Cincinnati Lancet-Clinic, July 8.

106.—*Points on Smallpox. Benjamin F. Lyle.
107.—*Tuberculosis; Diagnosis. H. H. Spiers.

Medical Record (N. Y.), July 8.

108.—*Report of Case of Alcoholic Multiple Neuritis, with Autopsy. J. H. Larkin and Smith Ely Jelliffe.
109.—*Notes on the Induction of Premature Labor. Henry C. Coe.
110.—*Variations in Human Gait. E. H. Bradford.

Medical News (N. Y.), July 8.

111.—*Bicycling in its Relation to Heart Disease. A. C. Getchell.
112.—*Prognosis of Pneumonia in its Relation to its Etiology. Herbert Maxon King.
113.—*Measuring Intensity of Heart Tones. Albert Abrams.
114.—Tetanus Treated by Antitetanus Serum; Report of Case. T. E. Taylor.

Boston Medical and Surgical Journal, July 6.

115.—*Cavendish Lecture on Etiology and Diagnosis of Cerebrospinal Fever. Wm. Osler.

Maryland Medical Journal (Baltimore), July 8.

116.—*Landmarks in History of Ophthalmology in Nineteenth Century. Hermann Knapp.
117.—Progress in Gynecology. Chas. P. Noble.

Medical Review (St. Louis), July 8.

118.—*Study of Nerve-Cell Changes of Spinal Cord in Case of Epidemic Cerebrospinal Meningitis. S. I. Schwab.
119.—*Treatment of Simple and Specific Vaginitis. Milton P. Creel.
120.—Temporary Divergent Strabismus Accompanying General Narcosis. Willard Bartlett.

AMERICAN.

1. **Eruptions in Typhoid Fever.**—DaCosta describes and illustrates, by cases, the occasional varieties of eruptions aside from the characteristic rose spots of typhoid fever. The scarlatiniform rash may come on early or late, and he has known it to occur even in convalescence. It is a uniform red rash seen all over the body, though not universally so, more distinct in some places than in others, easily influenced by pressure, having periods of greater and less intensity, of partial disappearance and vivid return. It generally lasts a week or a little longer and passes away without desquamation. Two cases are described. The measly eruption is rarer and more misleading and has much resemblance to the condition in typhus. Measles may complicate typhoid fever and this may lead to confusion. Two cases of this complication are described. The differences are the coarser, more papular and crescentic eruption of true measles; the itching and desquamation also are not seen in typhoid fever rash; the temperature range is also quite different and distinct. Still another type of rash is the mottling of the skin occasionally observed, which he considers due to a hyperemia. All these eruptions are probably due to nervous vasomotor disturbances, but how this is produced he does not say. There is nothing in these rashes which seems to add any special gravity to the disease when they occur.

2. **Typhoid Fever in the Late War.**—This article is the result of an inspection made under the order of the surgeon-general in the late summer of 1898. It is published by permission of the war department. The first point noticed was the lack of scientific diagnosis of typhoid fever, many cases being called malaria, though malaria was a very rare disease among the soldiers. The origin could be easily traced in most cases. Its spread was not so generally due to the water-supply as to carelessness in camp police. The statements made in this regard are very striking. There is no evidence that milk was a frequent vehicle. Note is made of the apparent intermittent character of the disease among the soldiers. He concludes as a result of the studies that a regiment thoroughly infected does not better matters by change of camp; there should be thorough disinfection of everything, clothing, blankets, tentage, etc. If the regiment is infected before the infection has become marked ,the typhoid may disappear or at least decrease. A sea voyage of some days or weeks may rid a command not too much infected, of the disease, but a short voyage would have no such effect if the regiment was thoroughly infected.

3. **Carcinoma and Tuberculosis.**—Warthin reports two cases of the coexistence of carcinoma and tuberculosis of the mammary glands, which he thinks are unique. He is inclined to follow Ribbert's view that the tuberculous process may act as a primary factor in exciting the carcinomatous condition, but thinks this relation is a very rare one. In his second case he considers the tuberculous process as a secondary infection to the carcinoma.

4. **Kernig's Sign in Meningitis.**—Herrick gives a thorough discussion of this phenomenon, considered by Kernig as characteristic of pial inflammation and always present in such conditions. It is described as follows: If a patient with meningitis is made to sit up, as on the edge of the bed, the thigh being, therefore, at right angles with the back, it is extremely difficult to extend the leg because of the presence of a marked flexor contraction. In 19 cases observed by Herrick, this sign was present in 17, and in the two where it was absent, both children, the single examination was made shortly before death when there was a general marked laxity of all muscles. It may have been present earlier. In 100 cases of disease other than meningitis, it was present only in 2. No satisfactory explanation of this phenomenon has been offered and Herrick does not attempt to explain it other than by saying that there is probably such increase in tone as to exaggerate the natural difficulty of extension to actual flexor contraction. (See JOURNAL, xxxii, p 1013.)

6. **Cystonephrosis.**—Fenger advocates the eversion, or turning inside out, of the sac of cystonephrosis, through an opening large enough to permit this, combined with methodic consecutive division of the partition walls one after another so as to lay bare and turn out for inspection the whole inner wall. This is the surest way of finding the ureteral opening. He reports a case at length, illustrating the value of this operation.

7. **Triple Infection.**—Eshner reports a case of tuberculosis with intercurrent typhoid fever complicated by pneumonia.

11. **Alkalinity of Blood.**—After an elaborate review of the literature of the subject, Salisbury ends his paper with the following conclusions, which he thinks are justified in the present state of our knowledge: The reaction of human blood is constantly alkaline. The alkaline reaction is due partly to inorganic alkalies and partly to substances of organic nature which are probably derived from the proteid food. The regulation of the reaction of the blood is due to the action of the kidneys and probably the liver. The alkaline reaction of the blood is reduced in various diseases—uremia, diabetes. In infections it is lowered in proportion to the virulence of the infection, but increases with the recovery of the organism, and in immune animals is above the normal. In the treatment of disease causes of acid reaction should be avoided, particularly in infections. Thus the action of the skin and kidneys should be favored and the production of acids by fermentation in the intestinal canal should be prevented. The administration of

alkalies in moderation is useful, but cannot be expected to raise the alkalinity of the blood to a high degree. This is due to the fact that inorganic alkalies are either temporarily stored in the liver or rapidly excreted by the kidneys. The increase of alkalinity in cases of recovery from infections is probably not the cause of recovery, but is due to the production in the blood of a curative substance which is alkaline in reaction. The substance is a nitrogenous organic compound, and is derived from the proteids. A meat diet, therefore, would seem especially suited for patients suffering from infection. It may be the case that the nitrogenous constituents of beef tea, although not proteids, are capable of furnishing the material from which such an alkaline protective agent can be produced.

12. **Cystitis Faveolata.**—Kreissl describes a condition which he has not found specially mentioned in the literature, occurring in cystitis, consisting in the gradual production of minute holes in the muscular coat of the bladder and after long continuance extending even to the interstitial connective tissues and even penetrating the bladder wall, producing pericystitis. It is distinguishable from the real diverticula of the bladder in which the opening is smaller than the cavity behind it and the holes thus appear like dark spots through the cystoscope while in this condition they are visible through their whole depth. They aggravate the condition by offering pockets for morbid secretions and rendering it difficult to cleanse the bladder by irrigation. He thinks chinosol, 1/10 grain to the ounce of distilled water, is the best remedy for this condition. Under it the condition of the urine improves rapidly, irritation subsides, and the intervals become longer. Later, Guyon's instillations of nitrite of silver may be employed.

14. **Protargol in Gonorrhea.**—Baum's paper gives a tabulated statement of fifty cases treated by him according to Neisser's method, with protargol, using injections thrice daily, the last one a prolonged one, thirty minutes, begining with .25 per cent. solution, gradually increased to .5 and 1 per cent. After a few days the last or prolonged injection is alone used. The other two injections are replaced by a 2.5 per cent. suspension of bismuth or iodoform, a 3 per cent. solution of boric acid or a .25 per cent. solution of sulphate of zinc. The fact that the solution is not precipitated by albumin probably accounts for some of the good results obtained and the penetration into the follicles and periurethral tissue must be greater. This method is a decided advance in the treatment of gonorrhea.

15.—**Floating Kidney with Hydronephrosis.**—Kolisher calls attention to the fact that intermittent hydronephrosis is not a rare complication of floating kidney, and he advises the following course in such accidents: Replace the kidney and keep the patient in bed; wait twenty-four hours for the spontaneous emptying of the tumor. If this occurs, a simple anchoring of the kidney in its normal position is sufficient to effect a cure, and in the light of our present knowledge seems to be superior to McArthur's or Senn's operation. If after twenty-four hours no decrease in the tumor has taken place, ureteral catheterization is to be employed, accompanied by deep massage. If nephropexy is performed, it should be preceded by a nephrotomy, which should include such repair of the pelvis of the kidney as is indicated in the case; the ureteral catheter should be left in position to act as a guide during the operation.

16.—**Hot Air Cauterization in Lupus.**—The object of this paper is to bring before the profession of this country the method of Dr. Hollaender of Berlin for lupus vulgaris—hot-air cauterization. He describes and illustrates the apparatus and also several cases treated by Hollaender according to this method, which seems to be a success.

17.—**Caput Obstipum Musculare.**—The summary of Harris' paper is as follows: 1. Caput obstipum musculare is a postnatal chronic inflammatory condition due to infection principally affecting the sternocleidomastoid muscle, and accompanied by contraction; 2, the affection is principally for a variable though considerable time progressive; 3, the best treatment is complete extirpation of the contracted muscle and the involved surrounding tissues.

19.—**Modern Sanitation and Quarantine.**—Souchon describes the requisites of modern scientific quarantine, especially with reference to yellow fever, as derived from experience in New Orleans and Louisiana.

20.—**Splenomedullary Leucemia.**—The patient was a white man, 37 years of age, a native of Louisiana and a farmer by occupation. In June, 1898, while shearing sheep, he was taken with a pain in the splenic region. Three days later the spleen was noticed to be growing large; there was no fever, but diarrhea of several days' duration. The spleen continued to swell, the increase in size ceasing from time to time only to recur, until it filled the whole of the left side of the abdomen and encroached noticeably on the right side. Of some bearing on the etiology of the case, in conjunction with the history of traumatism suffered while shearing sheep, is the fact that the patient suffered a severe blow on the right tibia some months after the beginning of the splenic enlargement, the skin over the site of injury being still discolored and tender at the time of his admission to the hospital. The blood was perfectly natural in color, a surprising fact, considering the enormous number of white blood-corpulscles. It flowed freely from the finger and was easily spread between cover-glasses, contrary to the observation of Cabot, who says it flows sluggishly and is difficult to spread on account of the masses of white cells concontained in it. Coagulation was slow. Nucleated red blood-corpuscles were noticed. Of leucocytes there were found—polymorphonuclear cells, lymphocytes, eosinophiles—largely increased in number—and a very large number of myelocytes, characteristic of the splenomedullary form of leucemia.

21.—**Mental Suggestion and Charlatanism.**—Scott's article notices the importance and utility of suggestion in the cure of disease, and then reviews "Christian Science," showing up its absurdity.

22.—**Diagnosis of Hip-Joint Disease.**—Napier describes the method of diagnosis in hip-joint disease quite thoroughly, but we cannot follow him fully in detail. The conditions which may resemble it are, simple contusion or sprain, which may simulate its symptoms very closely, though observation and rest in bed will clear up the diagnosis. Traumatic or rheumatic synovitis sometimes resembles the sudden acute attacks of hip disease, but there is usually more swelling and redness and more swelling over the joint. The pain is in the hip and the muscular twitchings during sleep are rare. In rheumatism there is often history of previous attacks and the duration of either form of synovitis helps to clear the diagnosis. Chronic synovitis may also give us the symptoms of bone disease, and dislocation of the hip has often been readily mistaken. Coxa vara is a rare condition, first described by Muller in 1889. It is a bending of the neck of the femur which usually occurs in males at the age of 14 or 16, but may occur earlier. The trochanter becomes elevated, there is usually pain, some atrophy, and later muscular spasms. The principal characteristics are limited abduction, elevation of the trochanter and pain after exercise. Pott's disease with lumbar abscess may also simulate this trouble.

25.—**Unification Needed.**—Lusk's paper is a plea for more concentration and unified effort on the part of the profession. He thinks that medicine has not received the consideration it should, and is convinced that the position we occupy is largely due to our own neglect of opportunity and will be unimproved unless we adopt principles or measures in keeping with good sound common sense and in accordance with the standards governing the closing years of the century instead of those prevail-

ing 100 years ago. We ignore the truth that in union there is strength, and subdivide our efforts and waste our energies. There are in the United States nearly one hundred thousand members of the regular profession. Imagine our power socially and practically if we paid allegiance to one national association, for instance, the one that has always taken the lead in power and numbers, viz., the AMERICAN MEDICAL ASSOCIATION. This should be strengthened by an enormously increased membership to which every physician should feel the same loyalty as to the country in which he lives. After enumerating some of the numerous national organizations, he asks, "Now why could not a majority of those numerous societies accomplish fully as important results in their special lines organized in sections, thus representing branches of the one great body? Why is this marked isolation necessary? I will leave the answer with you."

Another point noticed by him is the multiplication of medical colleges, and he specially notes the fact that the craze for adding "Professor" to one's name seems to especially affect the profession in the middle West. Thus, in Missouri, there have been organized since 1840 thirty-three medical colleges, sixteen of which survived in 1895. The following quotation from the annual address of Dr. Richmond of St. Joseph, Mo., president of the state society, is to the point: "A few, shrewd and ambitious for self-promotion, seeing how they would reap advantages from a professorship, organized a college. Those who were left out, not willing to be overtopped by the big professors, organized a second. Still there were a few who were not supplied, and disaffection springing up in one, it swarmed, and a third was the result. Of the forty-four doctors then in town I was one of the four who was not a professor, a distinction of which I am not ashamed. In selecting their faculties it was not necessary to go beyond the city limits, only to the suburbs." Still another question is the part we take in politics. Thus far in our profession we have done little, but the time has arrived when it is absolutely essential that we should make our power known, not necessarily in seeking position, but in selection of those who will recognize our position and our reasonable demands.

26.—**Prophylaxis in Obstetrics.**—The principal points in this paper are the necessity of attention to: 1, family and personal history; 2, general physical examination; 3, general hygiene, as food, clothing, etc.; 4, special attention to urine; 5, care of nipples and breast; 6, asepsis and douching before and after labor; 7, prevention of postpartum hemorrhage; 8, repair of lacerations.

29.—**Vaccin Virus in Eye.**—Eagleton reports a case of a doctor who accidentally had a vaccin tube pushed against the eyeball with some force. It was followed by a bleb beneath the conjunctiva. The patient had been protected by previous vaccination, otherwise there would probably have been loss of an eye.

31.—**Percentage of Color Blindness.**—Mullen has collected statistics as to the occurrence of color blindness from various sources in different countries, which show quite a wide variation from different sources of report. The total number of cases examined was 308,919, the larger number, 181,169, being from the United States. The average percentage of color blindness of the total was 1.82, the largest 3.80 in Denmark, the lowest .01 per cent. in France. In the United States the percentage was 1.53 for men and .0073 for women. [These figures do not give one full confidence in the reliability of the reports].—ED.

34.—**Operation on Injured Eye in Sympathetic Ophthalmia.**—First remarking that common experience justifies enucleation of the injured eye before the occurrence of sympathetic ophthalmia, while after this has begun it is generally useless. Sattler states that he has been led to restrict the operation to those cases in which the injured eye is a source of uncontrollable suffering, or because it harbors a concealed foreign body, or it could be assumed that the measure would be necessitated sooner or later. In other cases, however, where sympathetic ophthalmia has occurred, but is not attended by unbearable pain, operation should not be recklessly attempted. So long as this is not done there remains a small chance that it may furnish further along, the opportunity for a partial restoration of sight even in the injured eye. Three cases especially impressed him to adopt conservative measures in his later practice. He says: "To summarize briefly: Enucleation of an injured eye—particularly in rupture of the sclera, punctured wounds of globe with extension to the uveal tract—when active sympathetic ophthalmia of the fellow eye has been excited, is not justifiable, for the reason that after a complete subsidence of inflammatory reaction in both eyes, the injured eye may alone offer a chance for a partial restoration of sight. Enucleation of an injured eye which has excited sympathetic ophthalmia is justifiable and often a means of necessity, in case of traumatism produced by the lodgment in the eye of a foreign body which cannot be localized. If such are a source of continued suffering, the enucleation should be speedily done, but without a hope or prospect that this will influence the course of the inflammatory disturbance. Enucleation of the injured eye with the hope that it will favorably influence the progress of sympathetic ophthalmia has little or no foundation in accurate clinical observation or surgical experience. There certainly is no reliable proof that it has ever arrested or even retarded the fatal course once begun. It must, therefore, be considered an uncertain measure of interference, which expediency even can only counsel in a small number of cases. It must furthermore be added that there are no reliable data that it is harmful in the sense that it excites a more rapid or more disastrous course in the sympathetically affected eye. This is more likely due to the inherent degenerative activity, which varies in each case, so far as its destructive fatality is concerned.

35.—**Euphthalmin Mydriasis.**—This synthetic product, closely related to eucain B, was brought to the notice of ophthalmologists a couple of years ago, and its value reported by various European authorities. Jackson reports from his own observations, as follows: Euphthalmin acts on the eye as a true mydriatic. Its influence is more feeble and brief than that of homatropin. Its influence on accommodation is relatively slight, so that it has no practical value as a cycloplegic; and its cycloplegic influence causes but trifling annoyance when it is used as a mydriatic. It is the best agent we have to produce brief dilatation of the pupil under strong light, and stands next to cocain in value for dilating the pupil for ophthalmoscopic examination. Combined with cocain, it produces a satisfactory mydriasis for the examination of the eye, with the least annoyance to the patient and the most rapid recovery.

37.—**Vomiting of Pregnancy.**—Buford, after reviewing the physiology of vomiting, comes to the conclusion that the anabolism of the fetus and mother gives us an increased generation of the irritant which causes emesis, and a deficient elimination by the kidney produces its accumulation in the system. Summarizing these, he reaches the following conclusions: 1. The casus casi of vomitus gravidarum is not a reflex but the by-products of anabolic cell metabolism, which acts centrally, as apomorphia does. 2. The nephritis, which is usual concomitant of vomitus gravidarum, and is itself the result of hyperhydrochloria, is the cause of deficient elimination. The postulate that defective nutrition is a result of the above conditions is an accepted fact. The therapeutic endeavor should be directed to relieve the cause. This is best done: *a*, by lavage of the stomach thoroughly three times a day with alkaline antiseptic solutions; *b*, baths and massage to enable the skin to assist the kidney; *c*, by exercising freely in open air; *d*, the diet of proper quantity and quality. The induction of abortion to relieve vomiting of pregnancy he has never seen justified, and it is only mentioned here to be condemned.

38.—**Strabismus.**—Bear describes a special method of advancement of the tendons in strabismus, which is rather too detailed to abstract here. He also describes one or two other operations suited to special cases. He claims for his method that it is the safest and the simplest of processes.

40.—See abstract in JOURNAL, May 27, p. 1172.

41.—**Mastoiditis.**—Davidson's paper describes the condition of mastoid inflammation, its diagnosis and treatment. He thinks the most valuable diagnostic points are tenderness on deep pressure, and the sagging of the posterior superior wall of the canal, which are sufficient evidences of its existence; that we should never wait for redness and edema behind the ear to occur before making a positive diagnosis. In case of complicating acute suppuration of the middle ear, the first indication is thorough drainage through the canal, and the use of constant ice applications in contact with the mastoid process. He would continue this for four or five days in acute cases before resorting to operation, if possible. Hot applications, leeches and Wild's incision are condemned. In chronic cases he would not use ice applications at all, and in his judgment they should be immediately operated on. The operation is described in detail. Injury to the lateral sinus is bound to occur sometimes, but hemorrhage from it is easily controlled. The danger is from infection.

43.—**Alveolar Hemorrhage.**—Excessive bleeding after tooth extraction is noticed by Hartman, and is due to traumatism, laceration and fracture of the bone, or to hemorrhagic diathesis. Simple and direct pressure on the part is the best treatment, but tannin is the best agent for local application and may be used in conjunction with pressure. Monsel's solution is dangerous and not to be relied on. In cases known to be bleeders, it is well to give 10 grains of gallic acid every hour, commencing just before the operation, and continuing until bleeding stops.

45.—**Eclampsia.**—This is defined by Snyder as "an autointoxication caused by an agent producing coagulation, and characterized by convulsions, loss of sensation and consciousness, accompanied by frontal headaches and epigastic pains." In summarizing the treatment he concludes that the only rational procedure is to have all the emunctories active, as the bowels with compound colocynth, the bladder by mechanical means, a diet of milk and digestible foods. The patient is then placed in a hot bath or hot pack, when perspiration is soon established and prodromes vanish. After labor has begun, in addition use chloroform for spasm, and deliver the child by artificial means. Give cardiac stimulants; after labor use only the hot packs. From this treatment he considers the mortality due to eclampsia can be greatly reduced.

46.—**Autointoxication.**—Chittenden discusses the facts and theories relating to autointoxication, from the standpoint of general metabolism, considering autointoxication a possibility within the reach of every individual organ, tissue, and cell of the body. This conception of autointoxication does not exclude the possibility of another form of toxemia resulting from the absorption of products formed by the action of micro-organisms in the intestinal tract. Considering the possibility of autointoxication resulting from the action of normal products of tissue katabolism (xanthin, hypoxanthin, guanin, and adenin), either because of excessive production or tardy elimination, the recent evidence indicates that adenin is intensely toxic, is resistant to change within the body, is not excreted as allantoin or uric acid, and produces marked pathologic changes. Hypoxanthin is non-toxic, probably because of its early conversion into uric acid and allantin. Xanthin is likewise easily changed, and is more resistant; only when a methyl group is introduced into the xanthin molecule does it resist changes. The toxicity of the methyl compound increases with the number of methyl groups introduced. Acetone and its production is considered in this connection as a toxic substance, although in a healthy individual large doses are required to produce much effect; still, in inanition, the weakened conditions attendant on the severe forms of diabetes, and in some other diseases, acetone may be present and its possible physiologic effect is to be considered. The writer considers the chief factor in autointoxication "a phase of perverted metabolism which as yet cannot be localized, and doubtless does not admit of distinct localization. The production of so-called toxins is, without doubt, in many cases at least, the initial cause of the disturbances, but no one of the bodies can be held directly responsible for the physiologic results which ultimately appear. This, that, or the other substance, produced in undue amount, may simply set in motion a chain of events from which eventually is developed a series of symptoms only remotely connected with the primary action of the so-called toxin. The extreme sensitiveness of the nervous system to toxic substances renders it probable that autopoisons exert their primary influence here, and that many phases of autointoxication are due to primary disturbances of the metabolism of the nervous system."

47.—**Indigo Group in Internal Medicine.**—Discussing the relation of indol to free HCl in the gastric secretion, Vaux concludes that in:

1. Gastric conditions such as achylia, characterized by a total persistent absence of free HCl, and lactic acid, will ultimately be the source of indicanuria.

2. This condition will be materially advanced or delayed, according to the presence or absence of motility.

3. The indicanuria of gastric cancer must in a large measure be attributed to proteid degeneration.

4. Conditions of the stomach marked by excessive or continuous secretion of HCl, act in a similar manner to those with anachlorhydria, though for a different reason.

5. Primary enteric affections are usually the source of an increased formation of indol, and this is in direct proportion to their severity.

6. Constipation, unless in a person of unusual absorptive powers, or extending to the small gut, does not produce a marked indicanuria. While it is pointed out that intestinal stasis either in a moderate or pronounced degree always results in a relative increase in the elimination of indol, it is also well to remember that a condition of stasis may be present without any apparent torpidity of the bowels.

48. **Sarcoma of Thyroid.**—Cumston had under his observation for some months a case presenting moderate enlargement of the left lobe of the thyroid. Afterward, showing a tendency to rapid growth, and having attained the size of an apple, excision was effected. Examination of the neoplasm showed the capsule of the gland intact, the gland uniformly firm in consistency. Microscopic examination defined a typical follicular goiter at the upper part of the gland, which had become invaded by spindle-celled sarcoma in the septa dividing the vesicles of the gland. A focus of sarcomatous tissue, the size of a cherry, was found in the lower part of the gland. The writer discusses the subject of malignant neoplasms of this gland very fully, as well as the technic for their removal.

53. **Multiple Arthropathy.**—Simpson's case differs from arthritis deformans in some respects. While the progressive joint involvement was uniform, the first joints involved were the larger ones, the smaller articulations being last affected. The patient, a male, aged 43, presenting a fairly clear hereditary history of joint troubles, observed the arthropathy in the ankle-joints first, later the knees, the spinal column, in the dorsal, then in the cervical regions; and eventually the shoulders and elbows. Five or six years after the onset of the earliest symptoms the metacarpophalangeal joints became afflicted, were swollen, painful and with a marked tendency to luxation with noticeable ulnar deviation of the hands. It was observed that in damp weather, as a rule, the tenderness and discomfort

in and about the joints was decreased and an improvement was marked in the patient's general condition. The articular swelling was in this case apparently due, to a large extent at least, to the effusion into the joint; practically no deposit occurred about the joints. The case presenting an "unjointing" of almost the entire body, suffering was principally from the soreness experienced on attempted motion, and from the loss of muscular power.

55. **Ectopic Pregnancy.**—McLaren briefly reports fourteen cases of ectopic pregnancy, occurring under his observation, the last one a case of interstitial pregnancy with missed labor and death of the child, delivered by abdominal section thirteen months after conception. He thinks that there has been a larger mortality (3 in 14) in his experience so far than there would be were it repeated.

56. **Catgut.**—Boeckmann reviews the subject of catgut and its preparation for surgical use. He has tried to learn the trade secret of its preparation, but without success. He describes in detail the methods of cleansing, antiseptic impregnation, reduction, drying and stretching, hardening, putting in receptacles and sterilizing, which last he prefers to secure by dry heat. He believes that the ideal catgut is in our reach and will render all other kinds of suturing and ligating material superfluous. It must be aseptic, antiseptic, strong, pliable and durable. It is ideal, however, only in the hands of an ideal surgeon. Catgut of the best make as to strength, cleanliness and sterility, and surgically prepared by washing, silverizing, drying, stretching, exposure to sunlight, hardening in alcohol, with or without the addition of formalin, and sterilization by dry heat, put up in hermetically sealed envelopes is an almost ideal suturing and ligating material, subject, however, to improvement. If trouble arises, the surgeon is responsible.

57. **Pediatric Cases.**—Putnam presents, in this clinical lecture, cases of double and single harelip, cervical and tubercular adenitis, tuberculosis of phalanx and congenital dislocation of hip.

58. **Uric Acid Diathesis.**—The special point in Schultz' paper is that Rigg's disease is a uric acid manifestation and should be treated by constitutional methods, as well as local means.

59. **Varicose Ulcers of Leg.**—Brown's reports indicate that this paper is written largely to praise antinosin and nosophen in these conditions. Galvanism was also used.

63. **Propagation of Typhoid Fever.**—Ramseur finds, from his observations, that typhoid fever in small towns is fly-borne. In cities with good sewerage systems, it is necessarily water-borne. In cities typhoid prevails at any season, provided the germs remain active at all temperatures. In villages, on the other hand, it is largely autumnal and most extensive during the hotter, dry months when propagation by flies is possible.

64. **Laboratory of Ontario Board of Health.**—Mackenzie, bacteriologist of the Ontario Provincial Board of Health, describes the methods of work in the laboratory of the board. The diseases investigated were tuberculosis, cerebrospinal meningitis, etc. During the past few months he has been studying the hay bacillus noticed by Moeller, and closely resembling the tubercle bacillus. He finds, as differences, that its pathogenic virulence on animals is slight, and that the Sudan III. stain for tubercle bacillus will not affect this. Its practical importance, he thinks, arises from the danger of confusing it with the tubercle bacillus in butter and milk.

69. **Does Tobacco Cause Amblyopia?**—The term tobacco amblyopia commonly used is objected to by the author as not consistent with the physiologic action of tobacco. The most that can be said is that it may produce a sympathetic amblyopic condition through disorder of the stomach. Tobacco amblyopia, therefore, is a disorder of those not accustomed to tobacco, rather than that of tobacco habitués.

81. **Fracture of Radius.**—Richardson recommends the following method of reducing fracture of the lower end of the radius, which is practiced in the Pennsylvania Hospital. The surgeon stands in front of the patient, interlaces his fingers beneath the supined wrist and palm of the injured member, so that his two index fingers parallel crosswise beneath the lower end of the upper fragment of the radius. The palms of the surgeon's hands are then closed in upon the thenar and the hypothenar portions of the patient's hand, respectively, while the surgeon's thumbs rest parallel lengthwise on the upwardly displaced fragment of the radius. The parts are thus firmly grasped by the surgeon while the following movements are made: The patient's wrist is excessively extended by carrying his hand upward. When hyperextension has thus been secured the surgeon makes powerful traction on the wrist in the line of hyperextension. While this traction is maintained the hand is suddenly carried into full flexion, and at the same time powerful downward pressure on the upwardly displaced lower fragment of the radius is made by the surgeon's thumbs, opposed by the interlaced index fingers beneath the lower end of the upper fragment. The excessive extension of the first portion of the movement has always loosened or disentangled the displaced lower fragment while the subsequent traction flexion and direct thumb pressure has not yet failed to accurately force the lower fragment into its proper position. Separated epiphysis of the lower end of the radius is likewise easily reducible by this manipulation. For comminuted or complicated or very oblique fractures extension and moulding alone are called for in most instances. The patient does not anticipate what is coming; the two movements are made with lightning-like rapidity in a small fraction of a second, and, in nearly every case, perfect reduction has been accomplished before the patient realizes that he has been hurt; so anesthesia is unnecessary for making a single effort at reduction by the proposed method. Should the manipulation fail to secure perfect reduction at the first attempt, it is better not to repeat the maneuver until anesthesia has been induced, for the pain of repeating it would be intolerable.

86. **Interesting Cases.**—Manley reports three cases of rather peculiar interest. The first was one of mammoth dermoid cyst of the scrotum complicated with inguinal hernia in a man 60 years old, which was successfully extirpated and reduced. The second was of embryonic umbilical hernia, containing the stomach, small intestines, cecum and colon with the liver, spleen and pancreas, in a new-born female infant. There was practically no abdominal cavity, therefore its reduction was out of the question and the child succumbed. The third was a large irreducible umbilico-ventral hernia in an aged woman, relieved by supporting bandages.

93. **Etiology of Rheumatic Fever.**—Wertz reports the causes, so far as known, of acute rheumatism—season, cold and dampness, drought, which seems to have a relation as shown by English statistics, and locality, the infection seeming to cling to certain houses, like that of diphtheria, erysipelas, etc. As regards the bacteriology, he is brief and does not refer to some of the later researches and reports on this subject.

95. **Treatment of Diphtheria.**—Brubaker remarks on some of the difficulties and annoyances in the treatment of diphtheria, the difficulty of sometimes obtaining a satisfactory bacteriologic examination and the uncertainty as to when danger of infection ceases. As to the treatment, prophylaxis is of the utmost importance, but the area of contagion is a limited one and much can be done by isolation and disinfection. For local treatment he limits himself to the use of chlorid of iron given in medium doses. Preparations of mercury should also be given. He would advise a laxative followed by catharsis and afterward small doses continued. Antitoxin should be used in all cases and should be from a reliable laboratory. It should be used early, not waiting even for the bacteriologic report. The surgery of the disease is another matter briefly mentioned,

and in some cases it should be also done early. He thinks it a good practice, when intubation has been decided on, to prepare at the same time for immediate tracheotomy in case of failure in inserting the tube. Further, this measure is not certain to afford great relief as the membranes may extend deeply into the trachea and bronchial tubes, and it is well to state these facts to parents and friends.

97. **Indicanuria and Phenoluria in Children.**—Thomas' article reports five cases of children in whom he found conditions of apparent intoxication by these substances, the pathologic action of which he discusses in the light of the present literature. What is actually known of the subject is summed up by him as follows: 1. The presence of these substances in the urine is the result of a process of putrefaction of the albuminoid contents of the intestines whether intermingled in normal quantities or otherwise—usually the former. 2. Indol and phenol are converted by a well-understood process into sulphoconjugate acids, which are said to be not very toxic. He is not certain as regards this point and is continuing investigation on the subject. It appears that the liver plays a prominent part in the production of phenols, while indol is apparently formed in the intestines. On the other hand, the liver is said to impede the passage of these substances through the portal circulation, and when there is much indican in the urine we usually find alimentary glycosuria. His five cases were children, four girls and one boy, between the ages of 4 and 9 years. The symptomatology in these cases is, on the whole, rather indefinite, affecting the general condition and the state of the digestive organs. There was anemia, slight emaciation, muscular insufficiency, digestive disorders, some nervous exhaustion, and in one case respiratory trouble (dyspeptic asthma). The treatment is directed to the general condition, moderate exercise, out-of-door life, salt and sulphur baths. With an arthritic heredity, too much rich food should not be given, and he advises dispensing with meat or allowing it only in small quantities. The bowels should be looked after and kept disinfected.

98. **Tetanus.**—Ward reports a case of tetanus occurring a week after injury in which death occurred on the second day from asphyxia.

99. **Address.**—Barrow's address is that delivered before the Kentucky State Medical Society in May.

100. **Indications of Enucleation.**—Evans, after quoting the indications for enucleation as given by Knapp and Swanzy, states that there are many cases where it is impossible for him to say that this operation is required. He believes that altogether too many primary enucleations are done, and that they should be limited to those cases known to contain a foreign body that cannot be extracted, and to those of excessive laceration of the globe. Sympathetic ophthalmia does not develop for at least three weeks after injury, thus giving ample time to wait and see what rest and attention will do and still enucleate in time if required. He thinks, moreover, that the exciting eye, if closely watched, gives sufficient and timely warning of the approaching danger to the other eye.

101. **Bullet Wounds of Intestines.**—Three cases are reported by Woolsey, of multiple pistol-shot wounds of the intestines, treated by operation. One case has been previously reported in the *Annals of Surgery*. In one, death occurred from intestinal sepsis, the other two recovered. In discussing these cases the author condemns Senn's hydrogen insufflation as a diagnostic method, holding that it increases the danger of escape of intestinal contents and consequent risk of peritonitis. As regards prognosis, the number of wounds is an important element, as is also the condition of the stomach and bowels as to fulness or emptiness. Wounds of the large intestine, with its more solid contents, are less likely to be followed by their escape, and if the bowels are empty the chances of their perforation are diminished. The curious fact noted at Santiago, that all cases of abdominal injury operated on died and the only recoveries were those uninterfered with, is here noted, and the author concludes that the modern small caliber bullets afford more chance for conservative surgery than was formerly the case with large missiles. He also refers to the influence of the different reaction of individuals to intestinal wounds. The proportion of mortality of perforating wounds of the intestines has decreased from 90 to about 43 per cent. of cases operated on early, since the introduction of antiseptics. As regards treatment, the earlier the operation the better. It is useless to make a small incision; it should be at least five or six inches long. After checking hemorrhage, if it exists, the wounds should be searched out and closed with Lembert sutures. Two rows of continuous sutures are safer and more quickly applied than a single row of interrupted sutures. The other important points are the liberal use of hot normal salt solution, to cleanse the surfaces, to keep the exposed surfaces warm and moist and combat shock. The ideal method would be to avoid drainage, but if there is any question as to complete closure or of the retention of infectious matter in the abdomen, drainage would be advisable.

102. **Paralysis Agitans.**—This article is an analytic study of twenty-four cases of this disorder with special reference to its etiology and treatment. The special points noted are the preponderance of Irish—about one-half of the whole—among those affected, the advanced age, it being most frequent from the fifth decade on, and the influence of heredity in a certain proportion of cases, on which point the author's studies are not in entire accord with those of other observers. As regards occupation, nothing special was determined. As to causes, these cases, like others, show that the most important factors are age, sex, nationality, morality, violent emotions, especially depressing ones, direct and indirect heredity, and infectious diseases. The symptoms of the disorder are analyzed and studied at considerable length. Their onset is usually insidious, though sometimes abrupt: muscular rigidity, tremor, some pain. In most of these cases the disease was preponderantly diplegic, which is not in accordance with the statements of many other writers. The disorder is uniformly progressive. The mind is not affected unless it be at the very last. As regards treatment, diet and mode of living are principally to be considered. Some methods recommended are mentioned only to be condemned, such as vibration, Swedish gymnastics, and electricity. As for drugs, the two which seem to give some benefit are hyoscyamin and duboisin, but these should be given with great care. They are only palliative at best. Other drugs mentioned are hypnotics. The salicylates are condemned by the authors.

103. **Etiology of Texas Cattle Fever.**—Smith's paper reviews the facts as to the etiology of the Texas cattle fever, and concludes with some considerations in regard to the causation of malaria based on the analogy with Texas fever. He believes that malaria can be eradicated by proper care, at least outside of the tropics. In our climate vigorous efforts should be made to prevent it.

105. **Doctor as Carrier of Infection.**—In this article Howell calls attention to the fact that without proper precautions the doctor himself may become a disseminator of the disease which he treats, and that he has himself followed certain precautions, such as using a gossamer overcoat in infectious cases, keeping a couple of these in use and disinfecting them after each utilization. Other methods of precaution are also mentioned.

106. **Smallpox.**—Lyle reviews the history of the late smallpox epidemic in Cincinnati, giving tabulated statistics and notes of special features. The general character of the epidemic was very mild, the death percentage being only 1.75.

107. **Tuberculosis Diagnosis.**—Spiers' article is a protest against microscopic and chemical diagnostic tests in tuberculosis. He thinks that the presence of tubercle bacilli is not

reliable, that the tuberculin test has no general value, and that we should abandon the germ theory of the disease altogether. The above gives a sufficient idea of the trend of the paper.

108. **Alcoholic Neuritis.**—This paper contains a very elaborate report of a case of multiple alcoholic neuritis with autopsy and microscopic examination of the cord and brain. The authors found degenerative lesions irregularly distributed in the cortex of the brain, and in the stichochrome cells of the motor cortex, and archyostichochrome cells in which the nucleus varied in position and the staining was irregular. The chief lesions, however, were found in the cord and medullary nuclei, and the following are the general conclusions: 1. In fatal alcoholic multiple neuritis grave variations from the normal structure (equivalent picture of Nissl) of the ganglion cells of the anterior and posterior horns, the columns of Clarke, the nucleus of Stilling, and the nuclei of the medulla are always to be found when studied by appropriate methods. 2. These cystologic variations are characterized by their extreme polymorphism. They may consist of simple swelling of the ganglion cell or its chromatin particles; fine granular disintegration of the chromatin; destruction of the chromatin; central peripheral, perinuclear, and general chromatolysis; wandering of the nucleus to an eccentric position, the destruction of the achromatic structures to complete disintegration of the cell. 3. To what extent these lesions are due to the direct action of the alcoholic poison on the molecular structure of the ganglion cell (primary), or the degeneration of the peripheral extensions of both sensory and motor neurons (secondary), cannot, we believe, be accurately determined. The conclusion drawn is, that the peripheral degeneration is the much more important one of the two. 4. The best hypothesis yet offered to account for the degeneration of the cells of the column of Clarke is that of VanGehuchten, by the assumption that the ganglion cells of a nervous chain exercise the one upon the other a trophic action, the suspension of which produces a chromatolysis and disappearance of the corresponding cells.

109. **Premature Labor.**—Coe calls attention to the tolerance of rough handling exhibited by the uterus in certain cases, showing the incorrectness of the statement commonly taught, that it is easily excited by artificial means, and showing that dilatation of the cervix is by no means a certain method of inducing abortion. He gives five cases showing that gauze tamponade and water-bags, while invaluable for the purpose of softening and dilating the cervix and lower uterine segment, cannot be depended on to excite labor pains provided the membranes remain intact.

110. **Variation in Human Gait.**—Bradford's paper gives illustrations of the gaits in different styles of walking and calls attention to their importance in the construction of proper footwear and in training for marching, etc.

111. **Bicycling and Heart Disease.**—Getchell finds that acute dilatation of the heart is an accident that may be expected from overexertion in an unathletic rider, and that if the conditions are repeated, permanent dilatation, especially of the right heart, may result, with a consequent dilatation of the auriculoventricular valves. In the athletic, hypertrophy may be produced with a possible consequence of disease of the aortic valves. He thinks that children under the age of 12 or 13 years should be restricted in this exercise as they are liable to overdo it. With healthy young adults, precaution should be exercised against hill climbing and excessively rapid riding. After the age of 40 the bicycle may be beneficial or a positive danger. Proper regard for hills, excessive exercise against high winds, rough roads and the gear of the wheel will make it beneficial, while one indiscreet overexertion may cause irreparable injury.

112. **Prognosis of Pneumonia.**—King reviews the different varieties of pneumonia, based on their etiology, and concludes as follows: A pneumococcus pneumonia in a previously healthy individual under 65 tends to recovery by crisis, runs a distinct and definite course, is not complicated by pleural effusions and does not leave, after recovery, permanent injury to the lungs, or cause abscess or gangrene. On the other hand, it gives the largest mortality, and death in fatal cases is due to acute toxemia. Tubercular pneumonia either at the beginning of phthisis or in its course runs an acute and often alarming course, is more irregular in its development, may terminate in crisis as in the former type or by gradual subsidence, is not attended by suppuration of lung or pleura, may, however, produce pleuritis, dry or with effusion, is seldom, if ever, immediately fatal, and it is doubtful whether it has any harmful results on the tuberculous process. Streptococcus pneumonia—including all pneumonias depending on infection by pyogenic organisms—forms a large portion of all pneumonias, is always the class in which empyema, abscess and gangrene or septic complications of other origin are to be feared and in case of recovery is liable to more or less seriously impair the integrity of the lung or pleura. Influenza pneumonia, if uncomplicated, runs a shorter course in which less marked disturbance of the body temperature is associated with much greater vasomotor nerve disturbances and with profound prostration. It does not tend to terminate by crisis, does not involve the pleura, nor itself permanently affect the integrity of the lungs. It is rarely fatal. On the other hand, it, more than any other, predisposes the lung to infection by pathogenic germs, especially the streptococcus and tubercle bacilli, and is consequently more than any other, subject to after complications and sequelæ. He reports four cases illustrating each of these types.

113. **Intensity of Heart Tones.**—The following are the conclusions of this paper:

1. The loudness of the heart tones may be measured by testing the distance to which they are transmitted from their clinical point of auscultation.

2. This may be determined by two methods. The first method consists of measuring the distance to which the heart tones are propagated along definite routes on the chest. The second method consists of introducing between the stethoscope and chest wall a soft rubber rod of varying length, the tones gradually becoming less distinct as successive rods of increasing length are employed.

3. Of the two methods the latter is by far the more accurate, although this by no means represents an ideal attainment.

4. The employment of either method does away with memory in observing the progress of the strength of the heart in individual cases, and enables us to more easily distinguish any accentuation of the tones.

5. The order in which the tones can no longer be heard is as follows, beginning with the weakest tones: First aortic, first pulmonary, second tricuspid, second mitral, second aortic, second pulmonary, first tricuspid, and first mitral tone.

6. Until a universal stetoscope is employed we cannot hope to make the method of measuring the heart tones of general application, but must content ourselves with the application of the method to individual cases.

7. The first point beyond the hepatic region where the cardiac tones are no longer audible marks the lower border of the liver.

115.—See abstract in JOURNAL, July 8, par. 122, p. 93.

116.—See abstract in JOURNAL, May 6, p. 1000.

118. **Nerve-Cell Changes in Cerebrospinal Meningitis.**—Schwab ends his paper as follows:

1. In epidemic cerebrospinal meningitis we have to do with a process which affects the sensory cells.

2. The Clark system of cells shows a greater tendency to react to the disease than any other system of cells.

3. This tendency cannot be explained by means of the effect of the mechanical pressure of the exudate.

4. The degeneration of these cells is caused by a toxin which originates from the specific agent of the disease, the

micrococcus intracellularis meningitidis of Weichselbaum, which has a special affinity, first, for all sensory cells; secondly, particularly for the cells of Clark's column, therein showing a possible specific action toward these cells.

5. If the exudate does exert any pressure it is to be regarded as affecting the cells indirectly, i. e., it diminishes the normal resistance of the cells which come within the line of its force, and the cells so acted upon react easier to the toxic material than the others.

119. **Vaginitis.**—The method of treatment advised in this paper by Creel is the use of suppositories made of alum and glycerin, with carbolic acid and ichthyol. These are easily applied high up, and are not irritative, but at once begin to exert a soothing effect on the inflamed tissues. He briefly reports a number of cases in which this method was employed.

FOREIGN.

British Medical Journal, June 24.

Croonian Lecture on Some Points Connected With Sleep, Sleeplessness and Hypnotics. JOHN BUCKLEY BRADBURY.—This first lecture reviews the theories of sleep, the histologic, the various hypotheses as enunciated by Remon y Cajal, Duval Lugaro and others; the vasomotor, revived in a modified form by Howells; the chemical theories, of which only the recent one of Errera is considered worthy of mention, and the psychologic theory which he feels obliged to discard. The fundamental change, Bradbury holds, must be in the neurons, and this, he is inclined to think, must be of a chemical nature. In support of this, he refers to the investigations of various observers on the action of poisons on the nerve-cell, those of W. Ludwig, Binz, Goldscheider and Flatau, and Demoor. He follows the latter author, however, in admitting that we must confess ignorance of the intimate nature of the cause of sleep. The lecture is valuable as a comprehensive review of the principal facts and theories of the physiology of the condition so far as known.

Lancet, June 17 and 24.

Physical Diagnosis in Insane. JAMES F. GEMMEL.—The author calls attention to the difficulty of obtaining subjective symptoms in the examination of the insane, on account of their mental condition and their insensitiveness. Retention of urine is often discovered only by posture and gait. Strangulated hernia may be observed only when the patient is stripped for a bath, enteric fever only shown after the eruption has appeared, and numerous other instances might be cited common in the alienist's experience. Hence the necessity of the closest observation of every minute symptom and the necessary greater dependence on physical signs than in the sane. He details cases of purulent meningitis, phlegmonous gastritis and volvulus, illustrating the above points, and discusses the diagnosis.

"Chronic Venereal Sores," or "Ulcerating Granuloma," WITH ILLUSTRATIVE CASE. J. MAITLAND.—In 1898 Maitland described under the name "chronic venereal sores," an affection apparently the same as that observed in British Guiana, by Drs. Conyers and Daniels, and called by them "groin ulceration." He here reports another typical case of the disease which is fairly common in Southern India. It consists essentially in a chronic non-indurated more or less extensive ulceration originating usually from a bubo, not affecting the general health, and is contagious, auto-inoculable, and of venereal origin in the majority of cases. In its early stage the sore strongly resembles yaws, and as in that disorder, when healing action begins, the skin structure not being completely destroyed, inlets of new epithelium spring up at various points over the sore. In yaws, however, the sores never attain the size here seen, and are scattered over the body instead of being localized. This disease appears to affect young and middle-aged adults, and to be confined to the colored races. The disease is never affected by constitutional treatment or by local applications. Complete excision or amputation through healthy tissues is most effective, though sometimes thorough removal of soft tissues with a sharp spoon followed by the use of Vienna paste may produce an apparent cure.

Danger of High Altitudes for Patients Affected With Arteriosclerosis. TH. FINDLATER ZANGGER.—The author calls attention to the strain on the heart and arteries at elevations of three and four thousand feet and above, and especially of rapid ascents. Mountain railways are in this way dangerous to an unsuspecting public. The bad results in these cases, heart collapse, angina pectoris, cardiac asthma and apoplexy, often only appear after the return to the lowlands, and patients with cirrhotic kidneys are in greatest danger. In case of apoplexy, it is generally the combined influence of a few things slight in themselves, that, added to the altitude, produce the worst results. Over-feeding, over-exertion, exposure to hot sun, bowel neglect all have their part. Zangger advises an almost vegetarian diet in arteriosclerosis, with use of mineral waters, caution as to stimulants and avoidance of exercise in the heat of the day, especially in shut up valleys where the sun's rays are intensified in the rarified atmosphere.

Evolution of Lines of Sight. CHALMERS PRENTICE.—The author of this article finds from his studies of animals and men that the tendency to parallelism and convergence of the lines of sight is a late acquisition in evolution, and that it is incomplete, even in civilized man. In examination of over 3000 cases post-mortem he has not seen a single case that appeared perfectly straight. After death the tendency is divergent. From these and other facts, he concludes that the evolution of the optic axis is not yet complete, and that we are in a chronic state of eye strain, exhausting energy and probably seriously embarrassing us in the struggle of life. How serious is this handicap it is impossible to say, but it must be great, judging from the extent of the visual centers, which are many times as great as those that govern the movements of the arm or the leg.

Preventive Inoculation. W. M. HAFFKINE.—This address gives the results of the work of antiplague inoculation in India under Haffkine's direction. After demonstration of the effect of the serum on animals, its harmlessness in man was demonstrated by voluntary experiments by the officers of the laboratory and other Europeans and native residents of Bombay, and this was followed by more severe tests in several local prisons where a certain proportion of the inmates consented to the inoculation. In still other tests only a proportion of the population were inoculated, a course that after the previous demonstration of the value of the treatment and their willingness to receive the serum, is open to criticism. The results were generally and uniformly good, the difference in the mortality between the protected and the unprotected being estimated as high as 80 per cent, or more, in favor of the former. The duration of protection appears to be at least six months, and the Indian Government recognizes the certificates as exempting the holder from plague regulations for at least that period. The plague research laboratory is at work endeavoring to extend and perfect the discoveries already made for the better control of the pestilence. Typhoid inoculation is also mentioned and faith expressed that it will have a high practical value. As regards the relative value of inoculation and segregation disinfectant methods, Haffkine points out the distinction between purely parasitic germs and those that are both saprophytic and parasitic. In the former case the patient is the sole source of infection, and isolation is effective; in the latter he is only one source out of many, and other measures must be resorted to.

Tribuna Medica (Rio), v. 6.

Gases Produced by Bacillus Coli. C. LEPIERRE.—The complete absence of carbonic anhydrid in the gases produced in cultures of the bacillus coli, excludes all idea of a fermentation similar to that of the sugars. Oxygen is also absent, and the gases seem to resemble certain intestinal gases in their composition. Another point brought out in this study is that while

the production of gas is almost invariably in the first few days, with the bacillus coli, it is extremely irregular with the "para-coli bacilli," and usually absent altogether.

Grece Medicale (Syra), June.

Pernicious Convulsive Malarial Fever. J. KARDAMATIS.—This extremely rare and generally fatal disease is frequently simulated by ordinary malarial infection in persons predisposed to convulsions, but the latter is essentially a benign affection." "Gastro-intestinal affections in general prepare a favorable soil for the installation of malarial infection. even the spasmodic form."

Lithiasis of Prepuce. A. LOUIS.—When the patient applied for relief from the pains which had tormented him for seven years, the penis was shaped like the tongue of a bell, the prepuce gorged with calculi, requiring an incision to release them. Over a hundred were evacuated, from the size of a grape seed to that of a pea.

Progres Medicale (Paris) June 17.

Falling of Hair From Emotion. F. BOISSIER.—Several carefully observed cases have been recorded of late in this journal, and a still more striking case is now added: a normal, healthy farmer, 38 years of age, saw his child thrown and trampled by a mule. He supposed it killed, and experienced in his fright and anguish a sensation of chilliness and tension in his face and head. The child escaped with bruises, but the father's hair, beard and eyebrows commenced to drop out the next day, and by the end of a week he was entirely bald. A new growth of hair appeared in time, but finer, and exactly the color of the hair of an Albino.

Revue Hebd. Laryngologie, d'Otologie, etc. (Bordeaux), xx, 16, 17.

Lesions of Inner Table of Skull With Suppurations of Middle Ear. BRINDEL.—Necrosis of the inner table was found in 36 out of 142 operations on the mastoid apophysis. The cases were: simple mastoiditis in 15; Bezold's mastoiditis, 5; mastoiditis with thrombosis of the lateral sinus (latter not disturbed), 1; suppurative phlebitis of the lateral sinus, 1; cerebral complications, 5; otorrhea with occasional vertigo, 2, and otorrhea without vertigo, 7. Lesions of the inner table are rather more frequent with chronic than with acute otorrhea. They frequently give no clinical evidence of their presence, and produce no special phenomena. In a third there were no other lesions of the apophysis; in the rest there was also necrosis of the outer table or Bezold's mastoiditis. Four had facial paralysis, all cured by the intervention; 5 died; a large subdural abscess was evacuated in 2; 18 were treated by opening and curetting the antrum, tympanus and tympanomastoid passage, Complete evidément of the apophysis was done in 1 case and Garnault's method in another (reaching the antrum by detaching the meatus and raising the upper half of the bony passage without disturbing the tympanum). Moure's method of closing the retro-auricular wound at once, while it renders dressing the wound more difficult for the operator, secures cicatrization by first intention with scarcely a trace of the intervention, and is highly to be commended.

Cocainized Mentho-Phenol. A. RONAIN.—Two years' experience has convinced the writer that the combined anesthetic, gently caustic and powerfully antiseptic action of equal parts of phenic acid, menthol and cocain hydrochlorate produce a combination extremely valuable in oto-rhino-laryngology. To increase the caustic action he varies the formula to phenic acid, 1 part; menthol and cocain, āā ½part.

Revue Medicale (Montreal), June 21.

Thymus in Therapeutics. C. E. BOISVERT.—A distressing case of Graves' disease, rebellious to all medication for three years and threatening melancholic mania, was improved in a week and practically cured in three months, with fifteen to twenty-five grains of extract of lamb thymus a day. The only symptom left was a slight tumefaction of the thyroid. This case, as reported in detail, is a most convincing argument in favor of thymus medication, abundant at first and decreasing to suspension according to the manifestations of the disease.

Semaine Medicale (Paris), June 21.

Induced or Simulated Affections. EDITORIAL.—This article completes a study of affections induced or simulated by beggars, soldiers or convicts, and is a record of perverted human ingenuity. Severe bronchitic râles are simulated by a piece of cork tied to a string which is fastened to a tooth and the cork swallowed; hematemesis by vomiting blood which has been drunk for the purpose. Voluntary tympanism and retention of urine can be carried to a remarkable extent by some persons and only yield to the administration of an anesthetic. The local lesions and general disturbances that can be induced by plants, burns, etc., are legion, and each is described in detail. A deceptive icterus can be induced by steeping tobacco in oil, drying and smoking it all night. Then follow vomiting, fever and icterus that persist for weeks.

Centralblatt f. Chirurgie (Leipsic), June 24.

Sphincter Ani Destroyed by a Phlegmon: Plastic Operation. K. G. LENNANDER.—Almost normal continence was attained by this operation in which the levatores ani and glutei maximi were applied to a defect involving the sphincter and part of the posterior wall of the rectum, caused by a gangrenous phlegmon. Lennander recommends the method for a secondary operation after extirpation of a cancer of these regions.

Deutsche Medicinische Wochenschrift (Berlin), June 15 and 22.

Surgical Treatment of Benign Gastric Affections. W. PETERSEN.—This study of sixty cases, operated on at Czerny's clinic, emphasizes the fact that there is no field in which the harmonious working together of the physician and the surgeon is more imperatively required than in this. The ultimate results have proved extremely favorable; before 1895, 50 per cent. cured and 10 per cent. improved out of 281; since 1895, 80 per cent. cured and 10 per cent. improved, with 1 death, out of 32. Of 7 patients operated on for gastralgias, 4 were completely cured by gastroenterostomy; 1 by detaching pericholecystitic adherences; 1 by "pyloro-plastics" and a secondary gastroenterostomy; 1 is still under observation. Only 3 cases of fresh hemorrhage from the stomach were encountered, although there was a record of hemorrhages in 4 of the cases of stenosis, all cured by the intervention. One of the three fresh cases was evidently a vicarious bleeding from the parenchyma in place of the menses, and neither gastroenterostomy nor divulsion of the pylorus nor enlargement of the gastro-intestinal fistula proved effective. The other two cases were characteristic ulcus hemorrhages, cured by partial excision of the ulcus and gastroenterostomy in one case, and by the latter alone in the other, which establishes a new basis for operative treatment of ulcus hemorrhages, as it obviates the very important objection that the search for and ablation of the ulcus is too difficult and dangerous under the circumstances. It will be great progress if other observations confirm the result in this case; that gastroenterostomy alone, enables the stomach to empty itself and its walls to contract, and thus arrest further hemorrhage. A dilated stomach subsides rapidly at first and then more slowly, after surgical intervention, but seldom returns to normal size. The motor function is in most cases fully restored to normal; in a few cases it was permanently diminished. The amount of HCl decreases, and bile is frequently found in the stomach, but neither the bile nor the lack of HCl cause any appreciable clinical disturbances. The absolute indications for intervention are: Stenosis of the pylorus with a high degree of mechanical insufficiency—permanent decrease of the amount of urine and of the weight. The relative indications, after failure of internal therapeutics, are a high degree of atonic mechanical insufficiency, threatening hemorrhage, severe gastralgia and uncontrollable vomiting—from fresh ulcus, ulcus cicatrix. perigastritis and adherences.

Muenchener Medicinische Wochenschrift, June 20.

Value of Bremer Test in Diabetes. H. SCHNEIDER.—The behavior of the blood with anilin dyes varies in certain

circumstances, and Fremer (JOURNAL, xxx, p. 438) considers it a test for diabetes, but Schneider finds that the peculiar reaction known as Bremer's test depends on the acidity of the fluid mixed with the blood or of the blood itself, and is by no means confined to diabetes, but occurs whenever the blood, urine or other fluid is abnormally acid. It has no value as a differentiating test for diabetes, but may possibly be utilized some day as a test of the alkalinity of the blood.

Williamson's Test of Diabetic Blood. RUMPF.—Contrary to the above experience with Bremer's test, Rumpf considers Williamson's test a very useful means of differentiating diabetes, as the blood and urine of a diabetic subject evidently contains some substance that takes the color out of an alkaline solution of methylene blue, heated in the water-bath for 1½ to 5 minutes. It proved especially beneficial in a recent case of a patient brought to the hospital with the diagnosis "apoplexy." No urine could be obtained, but the Williamson test on a few drops of blood confirmed the assumption of diabetic coma.

Spindle-shaped Enlargement of Esophagus. T. RUMPEL.—A healthy man under observation for several years presented unmistakable evidences of this condition, which caused no disturbance except the occasional accumulation of part of the food in the esophagus, requiring auto-sounding. Experiments with a hard sound resulted in death from perforation peritonitis. The esophagus was found absolutely normal except for the enlargement, which was evidently due to a nervous spasm constricting the lower end. "All efforts to overcome such a constriction mechanically are worse than useless as they increase the functional spasm."

Wiener Klinische Wochenschrift, June 22.

Sectio Cesarea on account of Retrovaginal Cervix Myoma. E. WERTHEIM.—Called to a primipara after three days of ineffectual labor, a myoma was found obstructing the passage, requiring Cesarean section although the fetus was known to be dead. As the unusually large fetus was extracted the decidua was found decidedly degenerated, and instead of replacing the uterus and postponing the removal of the myoma to a more favorable season, as proposed, the danger of sepsis required the immediate extirpation of the myoma and uterus, which was accomplished through the vagina, with prompt recovery. The walls of the uterus were found thoroughly infected. Wertheim asserts that the results of Cesarean section in case of a myoma preventing delivery would be much more favorable than at present, if at the slightest suspicion of infection in the uterus, the radical operation was practiced as in this case, instead of conservative section or supravaginal amputation.

St. Petersburger Medicinische Wochenschrift, June 17.

Methylene Blue in Therapeutics. MICHAILOW.—This experimental study of the effects of methylene blue on the tissues and organs, demonstrates its utter unfitness for use in therapeutics at the doses hitherto prescribed.

Gazetta degli Ospedale (Milan), June 11 and 16.

Aqueous Extract of Tubercle Bacillus. E. MARAGLIANO.—Flourishing cultures are strained and the contents of the filter mixed with distilled water, equal in amount to the fluid strained out, kept on the water-bath at 90 to 95 C. for forty-eight hours, then evaporated to one-tenth and filtered. The result is a brownish fluid which Maragliano calls aqueous tuberculin or aqueous extract of the tubercle bacillus (see JOURNAL, xxx, p. 747). About five times as much of the essential toxic principle (which should be the standard for the strength of tuberculin), is obtained with water than with glycerin, while the degree of heat is just adapted to extract the maximum without attenuating the toxins, as occurs with Behring's tuberculin with a maceration at 150 C., while Koch's T. R. is obtained with water without any heat. From this aqueous extract a powder is obtained by dessication. An alcoholic precipitate and an alcoholic extract are also derived from it, and by the addition of 1 per cent. sulphuric acid, needle crystals are deposited which dissolve readily in water and possess a toxic power of 1 to 3333. All these derivatives of the aqueous tuberculin produce the same toxic action and in the same way as the aqueous and the glycerin tuberculin, and the action of each is neutralized by the serum. He considers the alcohol extract of the sediment the purest form of the aqueous tuberculin: its toxic energy is 1 to 20,000. He has obtained an aqueous tuberculin that kills a guinea-pig at 1 to 100, but the product he distributes is standardized to kill at 1 to 20,000 or 25,000.

Acetonuria and Fatty Acids. DE AMBROSI.—The research of the writer has established a direct connection between the amount of fatty acids in the stomach and of acetone in the urine.

Entorrhagia in Abdominal Typhus. L. MAZZOTTI.—The usual cause is the corrosion of a vessel connecting with one of Peyer's patches, as the scab drops off that has formed over it, which usually occurs at the end of the third or fourth week. Another cause is the hyperemia of the mucosa of the colon, which usually accompanies the height of the disease process, and appears at the end of the second or the beginning of the third week. Entorrhagia from this cause is easily cured by injections of hemostatic and astringent substances per rectum. The entorrhagia that appears during the first week does not depend on a local process but rather on the general condition, and represents a dyscrasis of the entire organism, such as Trousseaud's hemorrhagic putrid fever.

Trauma of the Spleen. E. CURTI.—A young farmer was tossed by a bull, the horn entering the left hypochondrium and lacerating the spleen and diaphragm. Brought to the hospital in severe collapse, the spleen was removed and the diaphragm sutured, the operation completed in twenty minutes, but the patient did not recover from the traumatic shock and died in four hours. At the autopsy the success of the operation was fully demonstrated and if the patient could have revived from the traumatic shock, there was no lesion or hemorrhage in either the abdominal or pleural cavity to have prevented recovery.

Cronica Medica (Lima), May 31.

Aneurysm in Both Popliteal Regions. M. ALCEDAN.—As much as a pound of clots were taken from the inflamed and extremely painful aneurysm of the left knee, which required ligating. After disinfecting the cavity the patient was transferred to the aseptic operating-room and the other aneurysm, larger than a goose egg, but not painful, was enucleated. The results of this dual operation were complete recovery of the enucleated limb and dry gangrene, necessitating amputation of the other.

Societies.

COMING MEETINGS.

Rocky Mountain Inter-State Medical Association, Salt Lake City, Utah, July 25 and 26.

Eighth Norwegian Medical Congress.—The addresses already announced for this Congress, which is to meet at Christiania, August 24 to 26, are: "Diabetes," by J. Bugge; "Traumatic Lumbago," by R. Natwig; "Prostatitis," by J. Roll, and "Modern Surgical Treatment of Tuberculosis," by O. Borchgrevinck.

Cass County Medical Association.—At the annual meeting of this Association, at Logansport, Ind., held June 30, the following officers were elected: President, A. Coleman; secretary, J. Z. Powell; censors, W. H. Bell, J. A. Little and A. J. Herrmann.

International Conference for Prophylaxis of Syphilis and Venereal Diseases.—Besides the delegates of governments and large municipalities, all physicians, jurisconsults and officials especially conversant with the hygienic and admin-

istrative questions in regard to prostitution and venereal diseases, are invited to take part in this Conference, which is to be held, as previously announced in the Journal, at Brussels, Sept. 4 to 8, 1899. The subjects appointed for discussion, to be presented by two or three speakers, are: 1. "Have the systems of regulation of prostitution at present enforced any influence on the frequency and the dissemination of syphilis and venereal diseases?" 2. Is the present system of medical surveillance of prostitution susceptible of improvement? 3. From an exclusively medical point of view, is it advantageous to maintain houses of prostitution or to suppress them? 4. Is the administrative organization of police surveillance of prostitution susceptible of improvement? 5. What legal measures would diminish the number of women who seek in prostitution a means of existence? 6. Aside from the question of prostitution, what general measures are advisable to effectively prevent the spread of syphilis and venereal diseases. No subjects except the above will be admitted to discussion. Communications relating to statistics or questions not on the programme will be translated, printed and distributed to the members before the Conference opens, if received in time. Secretary General: Professor Dubois-Havenith, No. 19 rue du Gouvernement provisoire, Brussels. Dr. Havenith is collecting the bibliography of the works published on the above questions and appeals to persons who have published works on these subjects to send him a copy at their earliest convenience. Dr. Dyer of New Orleans has been officially appointed to study the question of prostitution in the United States.

French Congress of Otology and Laryngology.—P. Bonnier, in his address on "Tests for the Hearing," at this congress at Paris, asserted that all the present tests are defective and lack precision for comparing the results between individuals. He suggests as a great improvement tests with a tuning-fork with 100 double vibrations to the second. The striation in its image produced by the angular displacement disappears at a certain moment. He designates this moment zero, and from this point the hearing capacities, solid and aerial, can be measured in positive and negative values expressed in seconds. The length of the time required for the extinction of the work renders the difference of a few seconds immaterial. Courtade recommended a couple of tuning-forks and rubber tubes for the detection of simulated deafness on the same principle as described in THE JOURNAL (p. 1253). Lermoyez reported a case of Bezold's mastoiditis in a nursling, the first on record. Lacroix presented an inhaler in which the medicinal substances are rendered much more volatile and effective by being heated as an outer receptacle is filled with water at 50 to 100 degrees C. Malherbe presented a small U-shaped celluloid tube which he inserts in the ear after petromastoidean evidement, one end in the antrum, the other in the external meatus, the concavity fitting over the apophysis. It is valuable in cases of sclerotic processes filling the passage, is worn without inconvenience, and is invisible from without. Lermoyez advocated treatment of nasal hydrorrhea by acting directly on the secretory terminals of the nerves with atropin (0.25 milligram), and on the vasoconstrictor centers of the spinal cord with strychnin (2 milligrams). These amounts are taken daily for one week; doubled the following week, and tripled the week after in extremely severe cases. Treatment is recommended after suspension for ten days. Local treatment is the last resort if this fails.

California Academy of Medicine.

June Meeting.

CASE OF SYPHILIS.

DRS. DUDLEY TAIT AND GUIDO CAGLIERI exhibited a patient with the following history: The patient, a man of 49 years of age, a farmer by occupation, living in the San Joaquin valley, about one year ago noticed a swelling in the right subclavicular region, just above the breast; this attained to the size of a nut, later suppurated, and after three months closed. Five months ago a swelling appeared in the right groin, which reached the size of an English walnut; it broke down, was incised and drained, but failing to heal, the gland was partially excised. Soon after there appeared enlargements in the left submaxillary and right preauricular regions. These suppurated, broke down and exhibited necrotic tissue. One month later there was suppuration of the glands in the right supraclavicular region. Ten days before entering the hospital swelling appeared in the left tonsillar region. Careful physical examination revealed nothing abnormal in the chest or abdomen; the urine was normal and the special senses were not in any way affected.

The diagnosis was obscure. At Fresno an "analysis" of some pus from one of the suppurating lesions had been made with the statement that tubercle bacilli had been found. This is, however, quite improbable, not only for the reason that it is very seldom and with extreme difficulty that tubercle bacilli can be found in pus from ulcerating areas and suppurating glands, but also because the case does not seem to be one of tubercular lesion. For a time glanders was considered, the patient presenting many characteristic points of resemblance to a case of chronic farcy reported by me a short time ago. This diagnosis was very soon abandoned, however. An injection of mallein, instead of producing an increase of temperature, caused marked decrease. Though no syphilitic history could be obtained, I concluded the case to be one of syphilitic lesion, of an unusual sort, and concluded to make use of intravenous injections. Potassium iodid was tried for two days, but resulted in such a severe eruption that it had to be abandoned. A 1 in 200 solution of cyanid of mercury was employed, the quantity injected at each time ranging from 1.25 to 6.05 gms. After two injections had been made the lesions were about 50 per cent. improved; the necrotic tissue had been entirely discharged and healing was well advanced. At the present time the patient has had four injections in the right median basilic vein, and improvement is continuous and rapid; the glands in the groin have almost disappeared. Have since noted that mallein is of no diagnostic value in man.

DR. GUIDO CAGLIERI.—There can be no doubt that the statement coming from Fresno, to the effect that tubercle bacilli had been found in the glandular pus, was incorrect. It is almost impossible to find the bacilli in glandular pus, for one thing, and for another the case was not at all like the picture, clinically, of tubercular trouble. It is quite possible that some other organism may have been noticed and mistaken for the tubercle bacilli. Quite a number of organisms have been recognized lately, and described as closely resembling the tubercle bacillus. It is at least possible that one of these was noted, though even this is problematic.

DR. HAROLD BRUNN.—I should like to call attention to the value of the hemoglobin test for syphilis in these cases where the diagnosis is somewhat obscure or impossible to get at from the history. I recently made use of it in two cases with very gratifying results. The last case occurred in a patient, a man of family, from whom no history of infection could be obtained. The wife was perfectly well and so were the children. An ulcerating area appeared on the upper lip which might, from the appearance and course of development, have been an epithelioma, though it was not characteristic of the lesion. I tested the blood and found about 80 to 85 per cent. hemoglobin. I then had the man rub in about a dram of mercury at night, and the next morning the blood examination showed a drop in the hemoglobin to 50 to 55 per cent. Three weeks later, under continued syphilitic treatment, the ulcer had entirely healed up. The test is of no value if the patient is under treatment by mercury in any form, and it is also negative unless in the presence of an active lesion, but under proper circumstances it bids

fair to give excellent results. In a case of active lesion, the patient not being under any treatment, a good-sized dose of mercury should show a drop in the amount of hemoglobin, within twelve to twenty-four hours, of from 15 to 35 per cent.

DR. D. W. MONTGOMERY.—I have found great difficulty in using the Fleischl apparatus. I tried for some time to obtain a normal standard for comparison, but without avail. In no case could I get a reading of more than 85 per cent. hemoglobin, even in a perfectly healthy man. It may be that I lack the technical skill in handling the instrument, but all my efforts were negative.

DR. DUDLEY TAIT.—I have not personally made use of the apparatus, but I had one of the internes at the French hospital make a test in a very clear and beautiful case of syphilis, recent, with an active lesion and absolutely no history of mercurial treatment. The test was erroneously made, for before the injection of mercury the blood showed about 80 per cent. hemoglobin, while after an intravenous injection of cyanid of mercury, the Gower apparatus showed an *increase* of over 20 per cent.

DR. HAROLD BRUNN.—The Von Fleischl instrument is not accurate for blood, the index being decidedly too high. Rarely ever can one get a hemoglobin percentage of 100, and never in my experience in a normal case. The normal runs from 80 to 90 per cent., and the test should be made with that understanding. I do not consider the reading accurate within 5, and always give my readings as between two points on the scale, as for instance, 80 to 85 per cent. One source of error is in the diaphragm opening. This may be somewhat reduced by making use of a paper cone, but even then there is a goodly chance for error. At the lower end of the scale the error is much larger, and the results are very unreliable when this portion of the scale is in use.

DR. D. W. MONTGOMERY.—In considering such a case as the one presented, it would be wise to remember the condition of coxidoidal disease, reported by Dr. Rixford some few years ago to the state society. He found two cases, both occurring in the San Joaquin valley, and both strongly resembling the case just reported by Dr. Tait. When Dr. Tait described the various lesions which had presented themselves in the patient exhibited, I was quite of the opinion that he was about to present another case of this rare affection. Evidently, the present case is not one of that disease, for it cleared up too well and too soon under the antisyphilitic treatment. But in all such cases, coming especially from the San Joaquin valley, the possibility of coxidoidal disease should not be forgotten, and the specific germ, the coxcidia, should be carefully looked for. The disease seems to be endemic in that valley. Dr. Rixford reported two cases from there, and I have since seen a third, coming from the same locality, and exhibiting the same general symptoms and clinical picture. The one I saw came from there some time ago. He broke out with an eruption, strongly resembling buds, quite similar to potassium iodid poisoning or mycosis fungoides. There was considerable glandular involvement and the coxcidia could be found in the glandular pus. Clinically, the picture was much like the case of syphilis reported to-night by Dr. Tait. The coxcidia was found in great numbers.

Two points of interest in these cases present themselves: The disease seems to first attack the lungs, or at least this was true in the two cases reported by Rixford and in the case seen by myself. The affection subsequently involved the skin and later the glands. The germ is found in all localities which are involved in the disease process. The abscesses may occur anywhere—in the lungs, the skin, the glands or any of the organs, and, wherever the abscesses appear, there the coxcidia may be found in the pus. The disease may be mistaken for syphilis, mycosis fungoides or tuberculosis.

2. Both of the cases reported by Rixford occurred in Portuguese who came from the same town in Portugal. For this reason there was some question that the disease occurred in this country; it might have been contracted in Portugal and brought to the San Joaquin valley by the patients. The case I have mentioned, however, tends to disprove this assumption, and indicates that the disease is endemic in the valley. My patient was a German who had been working on the Valley Road, and the locality where he contracted the disease is unknown, as he was traveling about a good deal.

The coxcidia has been thought by some observers to be a yeast germ, and not an animal parasite. This, I think, is not the case, for it seems to be subject to endogenous reproduction. I have tried to grow the germ, but unsuccessfully on any culture-medium at hand. It would not grow on agar. I had no malt at the time, so could not make the attempt to grow it on that culture-medium. Other observers have also found great difficulty in making cultures. I injected a rabbit with some of the pus, but as I only returned to the city last night, I have had no time to ascertain whether the rabbit has become affected; I am doubtful whether it has developed the disease. So far as the particular case presented by Dr. Tait is concerned, I am sure the diagnosis of syphilis was correct and the treatment certainly a most brilliant success. I spoke of these other cases, however, for the reason that they so strongly resembled the case of Dr. Tait's that I should have looked for the coxcidia in the glandular pus of this patient. The coxcidia would not have been found in this instance, but in all similar cases, especially when the patient comes from the San Joaquin valley, the possibility should be recognized.

CASE OF LUPUS.

DR. PHILIP MILLS JONES presented a patient whom he desired to have all carefully examine, for the reason that her condition was rapidly improving, and he did not wish to continue the treatment until the case had been inspected and further progress noted by others. The patient was sent to him by Dr. Regensburger, with the diagnosis of lupus. The woman is about 48 years of age, a native of Bordeau, and has had an affection of the face for thirty-six years. It commenced when she was a child of 12, and has persistently increased in extent until the present, in spite of all effort. Very many specialists have had the patient under their charge with no benefit to the condition. Dr. Jones commenced treatment by exposure to X-rays some two months ago. The face, save the right side, which is involved from the hair line to below the lower margin of the jaw, including the entire ear, was protected by means of a heavy lead plate, perforated with a hole to correspond with the area involved. The woman was then exposed within three or four inches of a low vacuum X-ray tube for from two to eight minutes, three times a week. The length of the exposure and the frequency of the treatments was decided largely by the effect on the skin; when too much reddened by the rays, the exposures were made shorter and less frequent. A slight dermatitis developed just below the eye, and a slight conjunctivitis was also produced by the rays, a few of which managed to strike the conjunctiva at one or two séances. These troubles have now entirely passed, and indeed were but trifling in the first instance. The maximum intensity of the rays was directed toward the lower portion of the area involved, and this part of the affection is very materially better than is the ear and the upper portion. It is so rapidly improving that but little idea of the condition when the treatment was commenced can now be formed. At that time the whole area was as badly involved as the worst portion now present. The lower area is almost well, the nodules have disappeared, and the skin is regaining its soft and pliable nature.

This is the second case of lupus the doctor has treated by means of X-ray exposure. The first was entirely cured of a lesion on the forehead which had lasted, in spite of all treatment, for seven years. The patient has been away for four months, but reports no change in appearance of former lesion.

DR. D. W. MONTGOMERY.—This seems to be a clear case of lupus. The history, the nodules and the general clinical picture all go to confirm the diagnosis of lupus. There is, however, a great difference between lupus and skin tuberculosis; clinically, if not etiologically, and whether both diseases are caused by the tubercle bacillus is still an open question. The tubercle bacillus is, however, found in both lesions, and if they will both yield to X-ray exposure it leads one to question whether the exposure to these rays would not be of benefit in tubercular lesions of other sorts. Lupus is found to commence before the 16th year, but tuberculosis of the skin may commence at any age. The question of the two diseases being the same affection is disputed by many good observers, but claimed by others. I am strongly inclined to believe that they are not the same affection, clinically, even if they prove to be etiologically. Lupus, true lupus, is a very rare disease in this country, and particularly so in California. I do not remember to have ever seen a case of true lupus occurring in a native; but tuberculosis of the skin is fairly common.

DR. P. M. JONES.—According to the differentiation made by Dr. Montgomery, the first case I treated in this way was not true lupus, but was rather tubercular lesion of the skin, for it occurred in a man of about 50 years. It was, however, entirely healed by the X-ray exposure, and to date has remained healed. In regard to what Dr. Montgomery has said of tuberculosis in other regions. I have exposed three cases of clear tubercular lesion of the lungs, in all of which patients the bacilli could be found in goodly numbers in the sputum. The patients all improved, the bacilli disappeared from the sputum, the night temperatures ceased, and now the patients say that they "feel perfectly well." I do not say that the patients were cured by the X-ray exposure, for it may have been spontaneous cure in all of them, but they certainly are now well, and also just as certainly had tuberculosis of the lungs at the time treatment was commenced.

(To be continued.)

New York County Medical Association.

Stated Meeting June 19, 1899.

ACUTE BRONCHITIS—A SYMPTOM; ITS TREATMENT FROM AN ETIOLOGIC STANDPOINT.

DR. THOMAS F. REILLY read a paper with this title, and showed that the inflammation of the mucous membrane of the respiratory tract is only a small part of the disease process, and that, as a rule, the bronchitis which so many physicians strive to treat, is only a symptom of a vitiated state of the constitution. A preliminary throat irritation almost invariably precedes, by several hours, an attack of acute rheumatism. Such a conception of acute bronchitis is of the greatest value in connection with the treatment. The therapeusis of acute bronchitis should consist in something more than the administration of nauseating cough mixtures. Probably the most common cause of bronchial catarrh in children is the elimination of toxic products from the gastro-intestinal tract. In most juvenile institutions attacks of bronchial catarrh are especially frequent after visiting days, and can be traced to the sweets and dainties given the little ones by their visitors. A judicious evacuative treatment will usually banish the unpleasant symptoms very speedily, far more so than if our efforts are directed toward the bronchial catarrh *per se*.

The most common etiologic factor in the cases of bronchial catarrh seen in private practice is that toxic condition described under the general name of lithemia. The speaker referred to the very common experience of being able to stand a wetting or exposure to inclement weather in the country without developing bronchitis, while the same person would "catch cold" in the city under far less provocation. The experience of Nansen and his associates in the Aretic region was very significant in this connection. Although these men had been exposed to the most bitter cold and trying climatic conditions they hardly knew what it was to suffer from ordinary colds, but no sooner had they returned to civilization than almost all of them developed colds. This would seem to bear out the theory of the infectious nature of bronchitis; the germ-free air of the Aretic region prevented these men, in spite of the exposure, from developing those affections of the respiratory organs which would certainly have followed a much less exposure in a more impure air.

With reference to the treatment, he said that from time immemorial expectorants have been used in cases of bronchitis, and they doubtless relieve the present distress, but it is very problematic whether they really exert any curative action. Ammonia preparations probably owe much of their action to their stimulating properties. The most rational treatment consists in efforts to eliminate the toxic products which are the primary cause of the bronchial inflammation.

NON-MALIGNANT STRICTURES OF ESOPHAGUS AND THEIR TREATMENT.

DR. HENRY MANN SILVER read a paper on this subject. He gave a careful review of the literature, and also reported the case of a child 4 years old, who had come under his observation last October with a stricture of the esophagus, the result of drinking a corrosive liquid. A No. 11 bougie was obstructed at a distance of 9¾ inches from the teeth, and, as the child was failing steadily, gastrostomy was performed. A month later retrograde dilatation was begun, and this part of the treatment was greatly facilitated by the use of an electric headlight and a series of endoscopes made after the general pattern of the Kelly cystoscope. In January dilatation with bougies passed in through the mouth had been commenced, and on April 18 the gastric fistula was closed. During the whole treatment there was no leakage and no irritation of the surrounding skin. A peculiar feature was a persistently subnormal temperature in the morning. It is worthy of note that the passage of the metallic bougie could be satisfactorily watched with the aid of the fluoroscope.

Turning to a consideration of the treatment in detail, the author said that when a powerful corrosive had been swallowed, giving rise to much inflammation and to the rapid development of a stricture of the esophagus, or when the regurgitation of a considerable quantity of food indicated that a distinct pouch had been formed, he would favor gastrostomy; if, however, there had been but little inflammation, and there was not much regurgitation, gastrotomy would seem to be the better operation. By the insertion of several silk sutures into the stomach, this viscus could be examined with ease, and this should always be done before deciding whether the operation should be completed as a gastrotomy or a gastrostomy. Dr. Abbe devised the ingenious method of dilating the stricture by bougies introduced from below, and then dividing the stricture with a string —the so-called "string-saw" method. During this dilating process of treatment the patient should be encouraged to eat solid food. The very brilliant results from gastrostomy and retrograde dilatation should point out the value of timely surgical intervention; if long delayed, the prognosis becomes much more grave.

DR. GEORGE WOOLSEY, speaking of retrograde dilatation and its advantages, said that much difficulty was often experienced in finding the cardiac end of the esophagus, largely because of the defective anatomic descriptions. A little practical "wrinkle" in this connection is to pull down on the lesser curvature of the stomach, and then cause the bougie to follow this curvature. Having once succeeded in passing the bougie, one or more strings should be attached to the bougie and brought out at the mouth. He condemned internal esophagotomy.

DR. WILLY MEYER advised, for strictures of the lower third of the esophagus, the employment of Abbe's string-saw method, although admitting that while the immediate results were often

good in dense strictures, they were often disappointing later on. He exhibited two adult patients on whom he had done gastrostomy by one of the modern methods. The fistulæ were watertight.

DR. JOSEPH D. BRYANT spoke of external esophagotomy, and also described a modification of the string-saw method which he had devised with the object of eliminating certain objectionable features of that otherwise very useful procedure. He said that in doing an external esophagotomy, the low operation is preferable because the distance to the cardia is thereby lessened. In opening the esophagus, care should be taken to make the incision sufficiently posterior to avoid injuring the recurrent laryngeal nerve.

DR. ROBERT ABBE said that he had accidentally hit upon the string-saw method while endeavoring to pass the bougies, with strings attached, on a case under his care about seven years ago. One of the bougies being hugged tightly, he had moved the silk to and fro, and found that the bougie had not only been freed, but that he could then pass, in rapid succession, several bougies of larger size. The patient on whom he had first tried this plan was still alive and well, and free from any return of the stricture. He recently applied this same string-saw method very satisfactorily to the treatment of a case of chronic laryngeal stenosis.

DR. JOHN A. WYETH pointed out that a very great deal could be gained in cases of esophageal stricture, whether malignant or benign, by prolonged rest of the part. For this reason he advised gastrostomy early, and asserted that if this treatment were adopted it would often be unnecessary, after a few months of such rest of the esophagus, to use bougies at all.

DR. MAX EINHORN urged the claims of the esophagoscope, an instrument which he considered superior to the endoscope. He also alluded to those rare cases known as spasmodic strictures of the esophagus.

DR. B. FARQUHAR CURTIS reminded those present that while the surgical procedures advocated by the previous speakers had accomplished excellent results, and were the safest and best at present known for this unfortunate class of cases, still the treatment was often full of disappointment. Such strictures were very prone to recur. They should be treated on the same principles as strictures of the urethra. The beauty of the string-saw method is that the strings can be kept in place and the treatment extended over a period of many weeks, during which time the patient's general nutrition can be improved.

Cleveland Medical Society.

Meeting Held June 23, 1899.

INTESTINAL OBSTRUCTION FOLLOWING ABDOMINAL SECTION EITHER IMMEDIATELY OR REMOTELY.

DR. J. B. DEAVER of Philadelphia presented this topic. He prefaced his remarks by detailing the histories of eight selected cases. Intestinal obstruction following operation is due either to paresis, the result of sepsis or traumatism, or to mechanical causes. The latter form causes 2 per cent. of deaths after abdominal section, and wherever suspected to exist invariably indicates immediate reopening of the abdominal cavity to free the adhesions. Most commonly the intestine is adherent to a fixed surface that has been denuded of its peritoneum. Peristalsis then causes kinking and obstruction. Two coils of bowel may adhere, in which case obstruction is often due to bending over the pelvic brim or the edge of an adherent omentum. Rarely, bands of adhesions may be found running in various directions, and occasionally a portion of bowel has been included in a ligature. Postoperative paresis or septic peritonitis are the only conditions with which mechanical obstruction can be confused. The latter may be distinguished by its more sudden onset, by the absolute constipation with inability to pass flatus, the late occurrence of vomiting, the lack of correspondence of temperature and pulse with the evident gravity of the case and the absence of all septic symptoms. Cases of acute abdominal pain, with absolute constipation and nausea, following an abdominal operation, even if at some interval, demand immediate incision. As to preventing the formation of adhesions, an early operation in a case in which it is indicated has decided advantages over a late one. Operation should be expeditious, the viscera should be handled as little as possible, and air should be kept out of the abdominal cavity as much as possible. After symptoms of mechanical obstruction have continued for twenty-four hours, the results of secondary operation are not favorable. In these cases appendicitis must always be thought of, as, perhaps owing to the frequent ill-advised use of opium, it is more often called intestinal obstruction than any other intra-abdominal ailment. All stumps should have peritoneum drawn over the raw surface, and the peritoneum should not be injured with irritating solutions.

DR. C. A. HAMANN noted the occurrence of obstruction from the ring of constriction left after an operation for strangulated hernia. This ring frequently sloughs, adhesions form and obstruction results. Such cases have rise of temperature for some time following operation.

DR. A. F. HOUSE asked whether the dry or the wet aseptic method of abdominal operation was most likely to be followed by formation of adhesions.

DR. HUNTER ROBB remarked that septic infection was the most common cause of obstruction following operation. He thoroughly cauterizes all pedicles and stumps before returning them to the abdomen, and thinks that has some influence in preventing the formation of adhesions. In every case he places 300 to 500 c.c. of salt solution in the abdominal cavity before closing up, and thinks that also has a beneficial effect in this respect.

DR. F. E. BUNTS expressed surprise at the fact of obstruction occurring so late—even several years—after operation. He commended the speaker for maintaining that the surgeon should refuse to operate in any cause which has passed into the hopeless stage, and thought all surgeons should pay more attention to this point. He could not see how the placing of a small amount of saline solution in the abdomen could have any effect in preventing the formation of adhesions, as it is all absorbed in a very few hours.

DR. W. H. HUMISTON said he either covered all stumps and denuded spots with peritoneum, or if time for this was lacking, he cauterized with a 95 per cent. solution of carbolic acid. In his experience, packing with iodoform gauze had had unfavorable results.

DR. DUDLEY P. ALLEN said his experience with obstruction due to mechanical causes was very limited, the septic form being much more common. He did not favor immediate interference unless the obstruction was certainly absolute, as he had seen cases of partial obstruction recover under small doses of opium with rectal feeding. Catharties aggravate the condition. Ordinarily he used nothing in the abdominal cavity when operating, and did not think this favored adhesions. If he used anything it had been sterile water. He agreed with the speaker that it was important to handle the intestines as little as possible, and to be expeditious.

DR. M. ROSENWASSER had had little experience in these cases. Where the mechanical obstruction was not complete tentative measures sufficed as a rule, but when it was complete early operation was imperative.

DR. DEAVER, in closing, said he had had no experience with the cautery in abdominal work. He thought dry gauze in contact with peritoneum more likely to disturb the endothelium than wet gauze. Undoubtedly where only partial obstruction existed the surgeon might delay incision, give very small doses of opium and feed by the rectum. It is often difficult to at once distinguish the complete from the incomplete obstruction, and in such a case he would advise immediate incision.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

Per Annum, in Advance $5.00
Foreign Postage 2.00
Single Copies . . . . . 10 Cents

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SATURDAY, JULY 15, 1899.

TREATMENT OF PERFORATING ULCERS OF STOMACH AND DUODENUM.

The prognosis of perforating ulcers of the stomach and intestine would seem to improve in the same degree as the practitioner learns to make early diagnosis of these cases and to immediately secure surgical treatment. According to Lennander, who presents a study of his cases of peritonitis following ulcers of the stomach and duodenum on which operations were made during the years between 1889 and 1897[1], the statistics so far published show that one-fourth to one-third of the cases of perforating ulcers of the stomach or duodenum which are operated on are saved. The first condition in order that a large number of cases of this kind may be saved is, that physicians abandon the idea that their first duty in such cases is to alleviate pain. The pain should, on the other hand, guide to a diagnosis, the principal element of which is: here must be operated at once, or, an operation is not indicated, at least not an immediate operation. If the treatment is begun with a large dose of morphin and warm applications, then the patient as well as the physician are led into false expectations, which are succeeded by cruel disappointment when the abdominal distension indicates the existence of a diffuse peritonitis. Even when it is determined that an immediate operation should be made, little or no morphin should be given, because of the danger of intestinal paresis after the operation.

According to Lennander, the diagnosis of perforating ulcers of the stomach and duodenum rests on the history of previous symptoms of ulcers, on the appearance of violent pain in the epigastrium, with or without symptoms of shock, with or without vomiting, on the rigidity of the abdominal muscles, and on local tenderness.

The abdominal incision should at once be made of sufficient extent to exactly determine the situation of the perforation and the extent of infection of the peritoneum. The perforations, which may be situated on the anterior or posterior surfaces of the stomach, or on any of the different parts of the duodenum, should be closed by bringing the serous surfaces together over a large extent and without tension, preferably by two rows of Lembert sutures. In case such closure is not possible, then the perforation should be covered by omentum, and the region separated from the rest of the abdominal cavity by means of tampons.

In the vicinity of the orifices of the stomach attention must be paid to the prevention of narrowing or bending during closure of the ulcer. This narrowing is best avoided by uniting the surfaces in a vertical direction with respect to the long diameter of the stomach or the superior horizontal part of the duodenum. When the perforation has been closed, all parts of the abdominal cavity which appear to have been infected are cleansed in the most painstaking manner, especial attention being given to the left subphrenic space. Inasmuch as a high degree of meteorism prevents careful cleansing of the abdominal cavity, an early operation is specially indicated. All those places in which exudate and pus are likely to become collected should be drained by means of gauze or tubes.

The prognosis depends principally on the length of time at which the operation is made after the perforation has taken place, also on the quantity and quality of the contents of the stomach which have become extravasated into the peritoneal cavity. The majority of the deaths have been caused by diffuse peritonitis; next in order come the subphrenic abscesses, and in a few cases pelvic abscesses.

While pelvic abscesses are readily diagnosed and operated on, the accumulation of pus in the subphrenic spaces is more difficult of treatment, because they are likely to early infect the pleural cavity, the lungs and the pericardium, and to become the starting-points of pyemia and septicemia. Subphrenic abscesses should not be emptied by means of transpleural operations in other cases than those in which an empyema exists or in which the pleural cavity is obliterated. In all other cases the incision should run along the costal arch, together with, in some cases, resection of the ribs below the lower limit of the pleura, according to the method originally proposed by Lannelongue in 1887.

When a perforating gastric or duodenal ulcer has been diagnosed, but operation for some reason or other not determined on, then there should be given no food whatsoever by mouth for at least one week, even if the patient's general condition improves so greatly that the original diagnosis becomes questioned.

Lennander's cases may be summarized as follows: No operation: One case of subphrenic abscess following

[1] Aisberättelser fran Akademiska Sjukhuset, Upsala, 1897-8, p. 193.

perforation of the stomach, in a woman 36 years old; recovery. Eleven cases were operated upon. In six there was a diffuse peritonitis, which in two cases followed perforation of duodenal ulcers, three cases perforation of gastric ulcers on the anterior surface of the stomach, and in one case on the posterior surface. In four of these cases the ulcers were found, and in three they were completely closed by means of sutures, in one incompletely sutured and tamponed. One of the cases operated on fifteen hours after the perforation died from diffuse peritonitis, in the other three the peritonitis subsided. Nevertheless, one died on the seventeenth day after the operation, from sepsis following an incompletely drained subphrenic abscess; another died two months and twenty-two days after the operation, from purulent pericarditis, due to a small subphrenic abscess; the third case died three and one-half months after the operation, having left the hospital in apparently good condition, on account of hemorrhage from the bowels. The other two cases of diffuse peritonitis, in which the ulcers were not sutured because not found, died three to four days after the operation. In five cases there was found a circumscribed suppurative peritonitis, which, in two cases followed a ruptured duodenal ulcer, in two cases ruptured gastric ulcer, and in one followed the taking of phosphorus for the purpose of producing abortion. Of these cases three recovered after operation, while two died.

VALUE OF MEAT EXTRACTS.

The flesh food which is taken into the human system consists of proteids with about .3 per cent. of creatin. The nitrogenous waste which is thrown out of the system by the kidneys consists of urea with about .3 per cent. of creatinin, the latter being an anhydrid of creatin. We would therefore be inclined to the belief that the proteids, when they have served their purpose in the human economy are eliminated as urea and the creatin as creatinin. The proteids are essential in a dietary because they repair muscular waste, and this waste is excreted as urea; but the excreted urea is not a measure of the muscular waste for when an excess of proteids is ingested that which is not required for metabolic processes is oxidized to urea with the production of heat and energy, and immediately eliminated. The ingestion of an excess is followed so promptly by the excretion of an increased quantity of urea that no time is given for the building up and breaking down of muscular tissue. Creatin is generally considered to be a transition product in the retrogression of albuminoids to urea, but the relation between it and the more complex molecule on the one side and the simple molecule on the other is not clearly defined. Urea is formed in the liver; but if the creatin of the metabolic processes be converted by this organ into urea, why should the creatin of the excess of albuminoids taken as food be excreted as its anhydrid instead of undergoing a reduction to urea in its passage through the liver? Professor J. W. Mallet[1], of the University of Virginia, has shown by some recent experiments that creatin introduced into the alimentary canal is not concerned in metabolism, but is eliminated as creatinin. First he elaborated a practical method for the separation of urea, creatin and creatinin from the urine. This method was tested by adding known quantities of these substances to normal urine. Of the urea 96.4 per cent. was recovered; of the creatin 86.9 and of the creatinin 95.0 per cent. He then administered the flesh basis in various doses to the human subject in a series of experiments and collected the urine of the succeeding twenty-four hours for analysis when creatin was ingested in 5, 10 and 15 grain doses from 96.18 to 98.24 per cent. was recovered. When creatin was ingested in doses of from 3 to 15 grams, it was evident that nearly all of that swallowed was converted into creatinin and eliminated in this latter form, very small amounts, however, escaping and undergoing elimination unchanged. The creatin recovered, as such, or represented by creatinin, constituted 95.73 to 98.92 per cent. of that taken into the system. The quantity of urea in these instances was practically unaltered. The main conclusion to be drawn from the experiments is manifestly that by far the larger part of the flesh bases ingested, if not absolutely the whole, does not undergo metabolism with the production of urea, or anything else, but is eliminated by way of the kidneys. It may also be fairly concluded that these bases occurring in food may be entirely disregarded as sources of energy. Hence it is important for analysis, in determining the nutritive value of meats and of articles of food prepared from meat, to distinguish between the nitrogen of the flesh bases and that of the albuminoid substances. The proteids build up the nitrogenous tissues and furnish muscular energy and heat, while the flesh bases are not available for any of these purposes. If the nitrogen of the food be made the basis for the calculation of the proteids without excluding the nitrogen of the creatin present, the food value will be greatly overestimated. Physicians generally recognize the absence of nutritive value in these extractives, but their use is frequently prescribed on account of their reputed value as nerve stimulants. Professor Mallet's observations on the physiologic effects of the doses administered tend to deprive them even of this credit. The most decided effect observed was a retardation of the action of the heart; and if this was accompanied by any change in the force of impulse in the radial artery it was probably a diminution of force. In the meat extracts the presence of salts of potassium has to be considered, but aside from this such extracts are reduced by these observations from the rank of foods or medicines to that of mere condiments or flavoring matters.

BY THE will of the late Joseph Murray, $200 has been devised to the Germantown (Pa.) Hospital, and a like sum to the Presbyterian Hospital of Philadelphia.

[1] The Physiological Effect of Creatin and Creatinin and Their Value as Nutrients. Bulletin No. 66, U. S. Dept. of Agriculture, 1899.

TUBERCULOSIS IN ANIMALS.

It is evident that the stock and dairy interests are becoming alarmed at the prospect of wholesale slaughter of their stock by reason of the convictions of the public on the subject of the contagiousness of tuberculosis. It is not wise to disregard this alarm. The community has no better right to inflict unnecessary harm by slaughter of stock than it has to inflict such harm by unwise tolerance of an evil. As a further consideration, the execution of law and, in fact, the law itself can never rise much above the level of public sentiment. Further, the defense of a private interest gains enough by intensity and directness to offset the larger clientele of a public interest. On the other hand, the farmer will eventually suffer enormous loss unless something is done to eradicate this disease. All statistics on the subject show its rapid spread; for example, the slaughter-house record of Leipzig are as follows: 1888, 11.1 per cent. tubercular; 1889, 14.9 per cent.; 1890, 22.3 per cent.; 1891, 26.7 per cent.; 1895, 33.3 per cent.; for Berlin, 1883, 2.86 per cent. tubercular, and 1895, 15.45 per cent. It is probable that the increase among dairy animals has been still greater. These figures are convincing even after allowing the largest possible margin for error.

As to its prevalence, there has been wide variance in the experience of writers. At Kiel the slaughter-house statistics show that 66 per cent. of the Danish cattle have the disease. In Illinois the Board of Live Stock Commissioners report tuberculosis in 20 per cent. of 2200 cows examined This is among dairy herds. The Wisconsin station has found tuberculosis in 10 per cent. of the cows it has examined. The Vermont station has examined one-fifth of the cows of that state, and from 2 to 3 per cent. have been found tubercular. In Germany, in 1895, meat condemnations by reason of tuberculosis entailed a loss of one and a half million dollars. The disease being so common and increasing so rapidly the farmer cannot afford to ignore the question, view it as narrowly as he will.

The question whether human and bovine tuberculosis is the same disease was answered affirmatively by Villemin, Chauveau, Klebs and Schuppel in the years 1868 to 1878. Volumes would be required to record the confirmatory work that has since been published. Theobald Smith of Boston demonstrated a difference in virulence between tubercle bacilli obtained from cows and tubercle bacilli from the human subject, but this in no wise disturbs the original conclusion that the diseases are identical. What shall be done with tuberculous animals is a very important question, and, as a subsidiary proposition, how are we to know that a given animal is tubercular? There is no question as to the advisability of using tuberculin. Eber, as a result of 563 inoculations, found 74 mistakes or 13.14 per cent. Bang, as the result of 515 inoculations, found 50 mistakes, 9.7 per cent. This allows for errors of every kind. 1. There may have been a slight tuberculosis in an unusual locality, the lesion having been overlooked. 2. One reaction protects against another for six months in many instances. 3. The great percentage of failures is in advanced tuberculosis, where the general debility and the physical signs leave no possibility of escape for the sick animal. Bearing these things in mind, the accuracy of the test is very great. Says Conn: "In detecting the presence of tuberculosis in our animal, then, tuberculin is very accurate; too accurate, indeed, to be a guide for the indiscriminate slaughter of reacting animals."

Shall the state slaughter all animals which respond to tuberculin is a question of importance. Bang, of Copenhagen, objects to this and suggests the following plan:

1. The farmer consents to accurately follow out directions given him by the veterinarian. Without this the whole plan is useless.

2. The herd is tested with tuberculin and on the results an infected herd is separated into three groups.

3. Group No. 1 is composed of healthy animals, and these are so handled as to keep them healthy.

4. Group No. 2 is composed of animals which, by tuberculin and by physical signs and symptoms, show advanced tuberculosis. These are killed at once. The meat is sold subject to inspection.

5. Group No. 3 is composed of those animals showing incipient tuberculosis. These animals are separated as to stables, pastures, troughs, attendance, etc., from Group No. 1.

6. Animals in Group No. 3 are kept under good hygienic condition: their milk is sterilized before using.

7. The calves from No. 3 are separated from their mothers and raised on sterilized milk. They are inoculated with tuberculin and on the results depends whether they are placed with Herd No. 1 or No. 3.

8. Every six months the healthy herd is inoculated with tuberculin, and reacting animals are placed in Herd No. 3.

9. Animals in Herd No. 3 that no longer react are not placed in Herd No. 1.

The statistics of an experiment along this line, lasting five years, is as follows: 1892, number of animals in Herd No. 3, 131, number in Herd No. 1, 77; 1897, number in Herd No. 3, 48, number in Herd No. 1, 155. This and other observations on this method demonstrate great remedial value in this, which is the most economic of all suggested plans. It demands the co-operation of the farmer. In this it does not differ from any other plan. Any will be inefficacious until the stockman enters fully into the spirit of it. To this end accurate reliable information must be carried into the home of everyone. In the meanwhile, many milkmen will see that it is to their financial interest to guarantee freedom from tuberculosis. To all asking it, the state boards will go to investigate, advise and act as action is demanded. The state herds will be kept clean. The market for tubercular animals for breeding purposes will narrow year by year, and so step by step education will spread. But at the present time the animal and his owner must be handled with the same moderation with which we handle the man who has tuberculosis.

THE MEDICAL CRISIS IN FRANCE.

The *British Medical Journal* recently gave a summary of a dissertation presented to the University of Lyons by M. Ernest Perthusiot, who discusses the "Medical Crisis" in France. The causes assigned are: 1. There are too many doctors. 2. The profession in France has in one way or another suffered discredit in recent years. 3. Quacks are allowed to take the bread out of the mouths of legally qualified practitioners. As regards plethora, M. Perthuisot shows that the condition is becoming acute. The number of doctors is increasing out of all proportion to the increase of population. He estimates that while the vacancies left in the ranks of the profession by death or retirement amount to six or seven hundred a year, the annual output of graduates by universities is at present more than eleven hundred, and the increase is so steadily progressive that in his opinion the number of doctors in France will within a limited time, perhaps ten years, have doubled itself.

CONGENITAL TUBERCULOSIS.

While congenital tuberculosis in both men and the lower animals is rare, there is no doubt that it does occasionally occur. More often that which is transmitted from parent to offspring is a predisposition to the disease, the activity of which is augmented by exposure to infective conditions. An instance of congenital tuberculosis in the calf was recently reported by Ravenel, to the Pathologic Society of Philadelphia, and specimens from a further example of the same kind were exhibited by MacFadyen at a late meeting of the Pathological Society of London. As a rule the calves of tuberculous cows are born free from tuberculosis, and fetid infection is usually, if not always, associated with tuberculosis of the placenta or of the uterus. Dissemination takes place under these circumstances through the blood-stream, as indicated by the wide-spread and discrete distribution of the lesions.

TRANSPLANTATION OF OVARY.

The *Medical Press and Circular* does not approve of the operation of ovarian transplantation. It says: "To leave a little bit of healthy ovarian tissue, when this is possible, is doubtless a good instance of conservative surgery, but to insinuate a whole ovary, belonging to another woman, into the peritoneal cavity, is hardly a procedure that commends itself to one's surgical instincts, and is likely to set up serious mischief." Whether serious michief here likely to be set up is medical or surgical michief is uncertain; the fact that aseptic transplantation is possible has been proven, and if so, what is the damage thus produced? One can conceive that such operations might lead to curious speculations as to heredity, but that these might extend to the point of producing "serious mischief" seems hardly probable to say the least. Should it be so, the questions would not then be medical, but legal or social ones, and our surgical instincts are not directly affected by matters so far ahead as that, provided they do not legally involve the operator. Ovarian transplantation may or may not have a brilliant future before it—that is a question on which we venture no opinion—but it has not thus far been proven dangerous nor mischievous.

INFECTION BY TELEPHONE.

Infection by telephone is again to the front. A Chicago doctor has found germs and calls attention of the public to the same. The Board of Health is called on to act and the newspapers have a fresh topic for scareheads and sensational articles. The JOURNAL has already expressed an opinion on this subject, but under the circumstances it may be justifiable to notice a few facts that were not stated before. The whole subject of infection by telephone was gone over by the Health Department of Chicago four or five years ago and with the result that in all the public telephones examined no evidence of special danger of infection was discovered. The use of the transmitter requires no direct contact or inhalation if the user keeps at the proper distance, and therefore the peril is not excessive even if germs exist. As they have not been found to any extent, the risk may be said to be insignificant. The explanation of these periodic revivals of the telephone scare may possibly be found in some commercial speculation, the intended introduction of an "aseptic transmitter," or some similar enterprise for which the newspapers are being "worked." Commercial enterprise without principle seems to be one of the orders of the day and, we regret to say, appears to seek a special field in the prevalent imperfect and erroneous vulgarization of medical facts.

EXTERMINATION OF MALARIA.

The Liverpool School of Tropical Medicine will send an expedition to Sierra Leone, Africa, next month, the object being to ascertain whether it is possible to exterminate from a small area the malaria-bearing mosquitoes which infect some parts of that region. The expedition will consist of men connected directly or indirectly with the school, and selected by their fitness for the special work. One of these will be Major Ronald Ross, lecturer in tropical medicine in the University College, Liverpool, who published a paper on "The Possibility of Extirpating Malaria from Certain Localities by a New Method," in the *British Medical Journal* for July 1. The success of his method of ridding the locality of the mosquito depends on the fact that in their predeveloped stage they are little wriggling larvæ, inhabiting stagnant puddles, especially in marshy regions. The ridding the locality of the pest will be made by filling up or draining the land. Whether the idea is new is doubtful, for it has been generally recognized in this country that mosquitoes are to be found in greatest numbers in low wet grounds and the corollary of this would be to drain, or eliminate the moisture. But we do not wish to belittle the importance of the possible scientific value of the proposed expedition; on the contrary we hope that it may result in such an increase of knowledge in reference to the disease and its cause that a method of eliminating it may finally result. We, in this country, have reasons now, if never before, for being deeply interested in this, as well as all tropical diseases.

HYSTERIC MISALLIANCES.

One of the unpleasant facts to patriotic Americans is the success of fortune-hunting dukes, etc., in captivating American heiresses, and the tendency of certain native snobs to take satisfaction in such events. Why any self-respecting citizen of this country should see any-

thing desirable in exchanging sovereignty in a republic for subjection, or the privilege of becoming even a highly titled subject, in a monarchy, is not self-evident in the nature of things; it is really a degradation politically and should also be socially. It becomes somewhat more mortifying, however, when these events and tendencies are regarded abroad as characteristically American, and made the subject of elaborate medico-sociologic discussion. A French medical expert has utilized and made prominent some of these American women as examples of sexual and hysteric morbidity, their prominence probably leading him to their selection, though equally numerous instances could without question have been found among his own countrywomen. One instance that he quotes is well known in this country as a most pronounced example of neurotic and insane heredity. Another is hardly American but more properly Italian, as the name indicates. Notwithstanding these facts, there are still enough prominent examples of European misalliances by American women to keep us still unpleasantly before the world and serve as texts for foreigners to dilate on American degeneracies. The medical side of the subject being thus prominently brought forth, while not pleasant, has perhaps the advantage that it may aid in calling the attention of a certain class to the unfortunate aspect in which they appear abroad.

THE KISSING BOGEY.

During the past week or two the eastern section of our country has, according to the newspapers, been suffering from the invasion of a new enemy to human comfort, the "kissing bug." It is said to attack sleepers and produce an acute swelling, usually on the lips—its favorite point of attack—hence the popular appellation. So far we have seen little mention of it in medical literature except in the Philadelphia correspondence of the *Medical News*, which gives a delightfully indefinite description of the creature that is supposed to be the offender, calling it a parasite of the bedbug "about an inch in length, of dark brownish red color, and having six legs and long antennæ." The name given it is, however, a better identification—"opiscaetus" (opsicætus?) personatus, a European species that is quite capable of performing the accredited "kissing bug" role. Other newspaper identifications have been published and it is possible that every kind of nocturnally received puncture, from a flea bite up, is being credited to this new and fashionable cause. Reports of its performances are coming in from all parts of the East and Middle West, and even deaths are reported from its bite. It is hardly probable that we have any general exaggeration of the frequency of any one species, though there may be a local increase. We must therefore assume, as most likely, that a large proportion of the cases reported have in them a mental element due to the newspaper reports. Cases of painful stings or bites during sleep are not uncommon. We have nearly all of us experienced them or observed their effects, but any ordinary or extraordinary event of the kind just now is credited to the "kissing bug." The probability that it is the species referred to by the Philadelphia correspondent, or some allied one of the family, is the greater, as that insect is a well-known infester of dwellings and its bite is sufficiently painful and serious to meet the descriptions. Other species, however, may be implicated, several of the water-bugs, Notonecta and Belostoma, are said to be poisonous, and there is a possibility that the electric light so general in our towns and villages may attract them in unaccustomed numbers so as to render more frequent the accidents of their bites. For the most part, however, we think the present epidemic of "kissing bug," except, perhaps, locally on our eastern border, is largely a matter of the imagination.

SHOULD THE PHYSICIAN PRESCRIBE PATENTED DRUGS?

An editorial in the *Medical News* (July 8), after defining a patent medicine in the technical and restrictive sense, answers the above questions affirmatively: 1, because the writer thinks these substances are of a very decided value and, therefore, it is to the interest of the profession to use them; and 2, because the physician has no right to deprive his patients of chemical products which he knows are especially indicated, simply because he does not approve of the methods by which they a manufactured or protected. If the strict definition of the *News* is accepted, then little objection could be made to the views expressed. We heartily endorse the sentiments contained in the concluding paragraph of the editorial: "There is a class of preparations which we believe physicians should carefully avoid using, namely, medical substances advertised to the laity. These should be avoided not from the business standpoint that they deprive the profession of practice, for this they do not do, because patients who take these preparations usually do so with such disastrous effects that the profession is pecuniarily benefited in the end by acute cases being transferred into chronic ones, but because the advertisement of these preparations to the laity causes non-medical readers to dose themselves with compounds which in many cases are not only useless but distinctly harmful. The products of those manufacturers who sell a preparation to the medical profession with the right hand and the same preparation to the laity with the left should also be carefully avoided in writing prescriptions."

LANDRY'S PARALYSIS.

While the precise nature of the disorder first described by Landry, and hence known by his name, remains unknown, there seems good reason for believing that the symptomatic manifestations of the affection are dependent on deranged functional activity of the peripheral motor neuron. Going a step further, it may readily be conceived that the disturbance of function is due to the activity of toxic substances introduced from without or generated within the body as a result of the vital activity of micro-organisms or of derangement in the bodily metabolism. However this may be, in some cases the symptoms have been indicative of peripheral neuritis, in others of anterior poliomyelitis. Of the infectious nature of the disease the presence of constitutional symptoms of greater or less gravity may be accepted as evidence. Symptoms of the affection consist in gradually

progressive and extending motor paralysis of flaccid type, with loss of reflexes, preservation of electric reactions, escape of sphincters, slight if any disturbance of sensibility, rapidity of course, and usually a fatal termination. It will thus be seen that the diagnosis may often be attended with considerable difficulty. Some of the points of differentiation from diseases that it may simulate or may be simulated by it are laid down in a brief communication presented by Haynes[1] at one of the recent meetings of the Brooklyn Pathological Society. In cases of multiple neuritis there is usually a history of ingestion or of exposure to the action of some poison, or of a preceding acute infectious disease; though the onset is sudden, the course is slow, sensibility is involved, electric reactions are lost, muscular atrophy takes place, and the disease usually terminates in recovery, sometimes after a tedious convalescence. Transverse myelitis is usually preceded by a history of injury or pressure, or of syphilis, or other infectious disease, and the symptoms are localized, sensibility and the sphincters are involved, and muscular atrophy takes place, with alteration in the electric reactions. Diffuse myelitis is attended with more pronounced constitutional and spinal symptoms, while in disseminated myelitis the spinal symptoms are scattered in accordance with the number and situation of the foci of disease. Meningomyelitis is attended early with muscular spasms, pain, fever, and other marked constitutional symptoms, the symptoms of meningitis preceding the development of palsy, while cerebral symptoms are present in the cerebrospinal form. In the ordinary form of anterior poliomyelitis, as seen in children and adults, there is limitation of the paralysis to certain groups of muscles, and in polioencephalitis, the cortex and cranial centers are implicated; while in Landry's paralysis, only the efferent spinal motor nerves and the anterior horns of the gray matter of the cord and the medulla are involved. The morbid process consists in an exudative inflammation, with cellular infiltration of the circumvascular sheath, degeneration of the ganglion-cells and loss of structural elements, with or without degeneration of the anterior roots. Haynes recommends, besides the usual remedies, antistreptococcic serum, as it has been found that animals infected experimentally with streptococci and their toxins exhibit changes in the nervous sytsem that bear a striking resemblance to those that have been found in some cases of Landry's paralysis.

SPONTANEOUS GANGRENE IN CHILD, DUE TO DISEASE OF VESSEL WALL.

There have been a few instances described in which spontaneous gangrene has developed in rather young children; Reynaud has observed such cases. Leyden and others have described gangrene following typhoid fever and other infectious diseases. In a case described by Lehmann, symmetric gangrene, resembling senile gangrene, developed in a child 9 months old, apparently on account of changes in the vessel walls. Goebel[1] describes the following case: For six weeks an eighteen months old child complained of pain in the left leg, which became blue, somewhat swollen, and cold to the touch. The clinical diagnosis was gangrene due to obstruction in the anterior tibial artery. At the autopsy there was found pneumonia, necrosis of the tonsils, and thrombosis of the abdominal aorta and the left popliteal and anterior tibial arteries; the thrombi were oldest in the popliteal artery. Where the popliteal artery branches, and in the first portion of the anterior tibial artery, there were found the following pathologic changes: At many points the endothelium was absent, the intima and inner elastic coat somewhat swollen and split up into a thin network of fibers —a local endarteritis, due perhaps to primary injury of the elastic coat. The resulting roughness of the vessel probably induced the thrombus formation. The nature of the changes in the vessel remains obscure.

[1] N. Y. Med. Jour., May 27, 1899, p. 743.

[1] Deutsche Arch. f. Klin. Med., 1899, 63, p. 184.

RELATIONS BETWEEN MENSTRUATION AND TUBERCULOSIS.

Both ovulation and menstruation, though distinct processes, have each a profound influence on the female organism. That they are affected by disease is well and generally known, but that they have other relations therewith has not been made the subject of extensive inquiry. It has been observed that the thyroid gland is sometimes enlarged at the menstrual period, and that in cases of pulmonary tuberculosis the menstrual discharge may be replaced by hemorrhage from the lungs. Some interesting observations in this connection have been made by Neumann[1], who relates that some tuberculous patients present regularly during menstruation increased febrile reaction; and that even otherwise afebrile patients exhibit, either before or with the onset of the period, elevation of temperature, with or without changed or aggravated conditions in the lung, continuing for some days after the cessation of the period. This phenomenon should arouse suspicion, even when the general condition is satisfactory in the intervals. Sometimes the catarrhal state in an obviously diseased portion of the lung is aggravated, without fever, during the menstruation period. Instead of rough intensified breathing, crackling and crepitation, or even phenomena of consonance, are audible. If these phenomena recur repeatedly, with or without fever, in conjunction with menstruation, the prognosis must be guarded. Not rarely indications of increased destruction appear, during and following the period. In patients, in whom improvement appears to be taking place, the recurrence of crackling and rales during the menstrual period must give rise to caution. In suspicious cases or in patients apparently anemic only, it is not uncommon to detect during the menstrual period, in lungs believed to be sound, auscultatory signs of latent disease. In some tuberculous patients in whom the general condition exhibits no change at the beginning of menstruation, a recession of the respiratory symptoms is observed with the cessation of the period. This may be repeated at successive periods, and the prognosis is thus rendered the more favorable. From the foregoing consideration tuberculous patients should avoid before, during and directly after the menstrual period, all things that increase the existing irritative state and that contribute to the extension of existing and latent foci. They are thus

[1] Berlin. Klin. Woch., May 22, 1899, p. 458.

advised to rest in bed while being supplied with abundance of air and bland, nutritious food. Traveling during the menstrual period, by tuberculous patients, is to be interdicted.

Medical News.

THE U. S. transport *McClellan* recently arrived at quarantine, New York City, from Santiago, with two well-developed cases of yellow fever on board.

ARRANGEMENTS are being made in Hamburg, Germany, for an institute for the study of tropical diseases.

SCURVY is prevalent in the famine-stricken Volga region in Russia. Over fifty-five thousand cases have been reported.

AT THE recent commencement of Harvard Universary the honorary degree of A.M. was conferred on Dr. W. T. Councilman, formerly connected witih the Medical School of the Johns Hopkins University.

DR. A. C. CROFTAN, Pasadena, Cal., leaves in a few days for Europe. He proposes to go direct to Vienna, to do special work on diseases of the chest, under Nothnagel. He will be gone about four months.

DR. WEBSTER FOX, Philadelphia, is in Europe. While away he will attend the meeting of the British Medical Association, and also the International Ophthalmological Society at Utrecht, Holland, in September.

DEATH from the use of chloroform as an anesthetic occurred in New York City on June 28, in the case of a boy of 9 years, to whom the chloroform was administered for an operation on the throat. The operation had not begun, however, when the death occurred.

DR. FAYETTE C. EWING of St. Louis will sail July 27, for London, to attend the International Otological Congress, as a delegate from the Western Oto-Laryngologic Association. Dr. Ewing has recently accepted the associate editorship of the *Laryngoscope*.

THE LONDON Cancer Society has commissioned Dr. A. E. Duffy to proceed to the United States for the purpose of collecting data regarding cancer, and to especially study the investigations being made at Buffalo, N. Y. A prize of $50 has also been offered by the Society for the best essaay on cancer.

ACCORDING to a recent decree a physician wishing to practice in Hungary must be a graduate of a Hungarian medical college, or have his foreign diploma accepted by one. This excludes Hungarians who have graduated at Vienna, and is also hard on Croatians and others who reside in Hungary but do not understand Hungarian. The decree is for the double purpose of restricting the number of physicians practicing in the country and increasing the attendance at the universities.

DR. WOODS HUTCHINSON, at the last meeting of the Zoological Society of London, read a paper on tuberculosis. This mortality fell most heavily on the ruminant animals in the Society's gardens. Of 215 necropsies made during the last six months, 49, or 25.3 per cent. of the animals and birds presented lesions of tuberculosis. This mortality fell most heavily on the rudiments and gallinæ, and least so on the carnivores and raptores. Race seemed to have little influence on susceptibility, mode of housing but little more, but food habits much more. A close correspondence seemed to exisit between immunity and the relative size of the heart in both birds and animals.

ADVICES through the United States Legation at Monrovia, June 7, confirm the report that a plague is raging at Grand Bassam in the French Ivory Coast country. This colony is adjacent to Liberia on the east coast, and to the British gold coast on the west. The disease is very similar to the bubonic plague, and is quite fatal. It is reported that at least two or three hundred people have already succumbed to the disease. Three European physicians are thought to have been victims. All homeward bound German steamers are quarantined against taking any African passengers to Germany.

THE AUTOMOBILE is of especial interest to physicians, but its high price places it beyond the reach of those whom it would most benefit. The *Gazette Medicale de Paris* suggests adopting the plan that is proving such a boon to the fishermen along the French coast; a company was formed for the purchase of small steam vessels for their use, in place of their untrustworthy sail boats. These are rented to the fishermen, who never could have accumulated sufficient capital to buy them. The writer urges capital to found a "medical automobile society" on the same plan, which might prove mutually profitable.

RELATIVE to the somewhat indiscriminate appropriations which New York City has been accustomed to make for the support of private charities, a committee of the Charity Organization Society has been making inquiry as to the methods of distribution of such appropriations in other cities and recommends that the New York City appropriations be limited to such agencies as children's institutions and hospitals, and be discontinued in the case of medical dispensaries; also that they be continued only to industrial schools until such are assimilated with the public school system, discontinued for fresh air work carried on by private societies and that appropriations to foundling asylums and children's institutions be on a *pe rcapita* and *per diem* basis

THE MEDICAL college founded in 1883 by French Jesuits at Beyrout, Turkey, has recently been recognized officially as the peer of the French colleges, its diplomas entitling the holders to practice anywhere in Turkey, France or its colonies. The *Journal de Medecine* protests most energetically against this order of things.

A LITERAL translation of the "Thousand and One Nights," into French, has just been completed by a young physician, Dr. Mardrus of Marseilles, a Mohammedan of Cairo. He is familiar with Arabian lore and life, but also thoroughly at home in Paris, where he completed his education. The combination of Parisian, Arabian and medical knowledge is said to have produced a rare work, as the author has traveled and observed much and had access to many unpublished manuscripts.

IN 1896, Dr. Levi Cooper Lane, founder of the Cooper Medical College of San Francisco, Cal., founded and endowed a course of lectures to be delivered annually and known as the Lane Medical Lectures. The course consists of ten lectures by one of renown or ability of note, selected at present by Dr. Lane, and after him by certain trustees, and the lectures are subsequently to be the property of Cooper College. William Macewen was the first to be invited to deliver this course, in 1896, and he was followed by Christopher Heath and Thomas C. Allbutt, in 1897 and 1898. The course for the present year, delivered June 28 to July 3 by Dr. Nicholas Senn, of Chicago, as previously noted in the JOURNAL, has been very well attended and awakened much interest. The

lectures were as follows: "Introductory;" "Traumatic Shock;" "Prophylactic Hemostasis;" "Treatment of Hemorrhage" (two lectures);" "Gunshot Wounds;" "Wound Infection;" "Treatment of Wounds;" "Compound Fractures;" "Technic of Modern Amputations."

PRINCESS LOUISE of Coburg, daughter of the King of Belgium, has been definitely incarcerated in the Lindenhof sanitarium at Coswig, near Dresden, as two medicolegal experts at Vienna, with the concurrence of the Faculty of Medicine, have officially decided that she is mentally and morally irresponsible. They ascribe her condition to the commotio cerebri caused some years ago by a fall of nearly a hundred feet, in the mountains, and a subsequent typhoid fever.

EXCURSIONS for medical study are organized every summer in France to acquaint physicians with the watering places, springs, etc., of the country. This year Professor Landouzy is in charge, and will personally conduct the party to the Auvergne and other resorts, September 2 to 13. Half-fare railroad rates are given to the profession and the expense of the trip is 200 francs per capita, or about $40 for the eleven days, hotels, etc., included.

FROM the *Lancet* of July 1 we learn that the 32 cases of plague in Egypt, preveiously referred to in the JOURNAL, have been spread over the two months of May and June and limited only to one town, but chiefly to one dirty corner of that town, a native bazaar. The victims have all been from the lowest class of natives and the lowest Europeans. The correspondent says that the present localization is confirmatory of the theory of place infection, capable of eradication by giving attention to cleanliness. The sanitary department is isolating cases, watching friends of the infected, cleansing the habitations and possessions of the patients, etc. Two policemen, not on police duty, and one hospital orderly had contracted the disease at the date of the correspondence, June 24, and the municipality of Alexandria had passed suitable sanitary measures. The writer says that the plague has done one good thing in emboldening the Egyptian Government to pass a measure which the sanitary officials proposed some time ago but which did not meet the approval of the General Government.

THE CHICAGO Health Department has inaugurated a new movement in sanitation—house-to-house instruction as to hygiene and sanitary matters. Some forty physicians, largely recent graduates, have volunteered to disseminate the information, making a regular canvass of their districts, pointing out defects and advising householders and parents as to the proper care of children, the abatement of nuisances, the methods of sterilizing milk and water, the needs of cleanliness, etc. The object is the prevention, rather than the cure, of disease, and the inspectors are not expected to prescribe for or treat cases unless in emergencies. The department will have the advantage of receiving fuller and more detailed information than could have been obtained through its paid forces alone, the voluntary inspectors will have the benefit of their practical experience in sanitary work, and the public, or that portion that most needs it, will get the instruction it should have in matters on which it most requires enlightenment. The work will be largely if not entirely in the thickly settled and poorer portions of the city, and the result of the experiment will be watched for with interest.

PHYSICIANS in charge of the laboratories of Jefferson Medical College, Philadelphia, have for some time been studying the condition of the urine after prolonged exercise on the bicycle. In most instances the urine was selected from those individuals known as "record breakers," forty or fifty cases being studied, examinations made before and after the ride, and again a few days afterward. In quite a number, after a ride of twenty minutes temporary albuminuria occurred.

THE INDIA correspondent of the *Lancet* (July 1) reports the number of deaths from the plague rapidly diminishing. The total for the whole of India for the week ending June 4 was 511, while in Bombay the weekly total mortality had fallen almost to its normal level, and the reported plague mortality was only 64. At the date of writing, June 7, there were still about 4,000 persons living in camps, while in Karachi the outbreak had almost subsided and in Poona the deaths were very few. Calcutta reported but twenty or thirty a week. Still the infection lingers and fails to be stamped out entirely anywhere. He considers the organization for the treatment of plague cases at the Medical College Hospital in Calcutta unsatisfactory, "the accommodation provided being a small, dark, cellar-like ward on the ground floor, which is also used for cholera and other infectious cases. In fact, cholera cases of plague in Egypt, previously referred to in cases and plague cases frequently occupy adjoining beds."

TABETIC CLUBFOOT.—One of the rarest complications of tabes dorsalis is a deformity of the foot in which sometimes the arch yields and the patient walks on the inner border, while the outer border is everted, and sometimes the arch is increased, constituting the so-called Chinese foot. Both of these conditions must be looked on as trophic disturbances, allied to the arthropathies. After the joints are obliterated, sometimes the altered bones undergo fracture and it has been thought in some instances that the muscles also were affected. An interesting example of the deformity has recently been reported by Schulz[1] in which radiographs disclosed the existence of spontaneous fractures in the affected parts. The patient was a man, 33 years old, with a history of syphilis twelve years previously. He presented induration of the cervical and inguinal glands, and prominence of the left tibia in its lower third. The condition of clubfoot had been present for six years, while the remaining symptoms had made their appearance two or three years later. There was slight ataxia in the lower extremities and slight swaying when the eyes were closed. The pupils were unequal and responded to light but sluggishly. The knee-jerks were wanting, although an occasional response could be obtained on the right. Lancinating pains in the extremities occurred from time to time. The most marked sensory disturbance consisted in a double sensation when the left foot was pricked, the sense of contact being followed after several seconds by one of pain. There was a perforated ulcer of the left foot that had been present for six years intermittently. An existing sinus was 0.75 cm. deep, but did not lead to roughened bone. The foot was markedly clubbed, with strong plantar arching, and about two cm. shorter than the right. In its middle it was broader from side to side, and the toes were deflected outward. On palpation the heads of the first and third metatarsal bones were found to be considerably thickened. A skoiagraph showed that the joint between the astragalus and the os calcis, as well as that between the scaphoid and the cuboid, was almost completely obliterated, while that between the cuboid and the external cuneiform and the heads of the last two

[1] Berliner Klin. Woch., May 28, 1899, p. 477.

metatarsal bones was represented by a compressed mass without indication of articular line. The cuboid bone appeared fractured, and the fissure appeared to extend between the scaphoid and the internal cuneiform bones. Enlargement of the heads of the first and third metatarsal bones was evident. The scaphoid bone also was enlarged, and its tuberosity appeared to be separated from the the body of the bone. The nature of the tabetic clubfoot has hitherto not been clearly understood, and this demonstration shows its mode of origin in at least some cases. It is possible that as a result of disturbances in the nutrition of the bones of the foot these are rendered more fragile, and are more readily fractured through the agency of the superincumbent weight.

Therapeutics.

CORRECTION.

An error in dosage occurred in this department in last issue, under the caption "Heart Tonic (p. 113). In the first item of prescription, "Strychninæ Sulph., gr. 1/3" should appear instead of "gr. i-iii." The metric dosage, however, is correct.

UREMIA.

For uremic attacks, Delafield advises chloral 10 grains (.6 gm.) per os, or 20 grains (1.29 gm.) per rectum, every three or four hours, or nitroglycerin gr. 1/100 (.0001 gm.) to 1/50 gr. (.001 gm.) repeated as indicated by pulse tension. Hot packs, except in cases with cerebral symptoms and feeble pulse.

In anasarca of malarial origin:

R.	Spiritus juniperi comp.	Oi	480
	Ferri sulphatis	3ii	7 80
	Potassii acetatis	3iv	15 60
	Extracti digitalis fluidi	3ii	7 80
	Syrupi scillæ	3iv	15 60

Misc. Sig. Tablespoonful three times a day.

Mullone.

ENURESIS.

R.	Extracti rhois aromaticæ fluidi	3iiss	9 75
	Extracti ergotæ fluidi	ʒss	15 50
	Extracti belladonnæ fluidi	3ss	1 95
	Strychninæ sulphatis	gr. ¼	016
	Syrupi aurant. corticis ad	3iv	124 40

Misc. Sig. Teaspoonful four times a day.

Macallister.

R.	Extracti jaborandi fluidi.		
	Extracti belladonnæ fluidi aa	3i	3 90
	Extracti tritici repentis fluidi	ʒss	15 50
	Extracti ergotæ fluidi		
	Extracti rhois aromaticæ aa	ʒi	31 10
	Aquæ	ʒss	15 50

Misc. Sig. One teaspoonful three times a day.

S. W. Armitage.

INCONTINENCE ACCOMPANYING CHOREA.

R. Syrupi ferri iodidi m. v., xx (33 to 1.39 gm.) in water before meals, the dose being regulated according to age of child, and after eating liquoris potassii arsenitis m. iii-vi (.20 to .40 gm.) according to the tolerance of patient.

Butler.

Potts recommends for incontinence of chorea quininæ sulphatis gr. v. (.32 gm.), to be gradually increased.

INCONTINENCE OF URINE IN AN ADULT.

R.	Tincturæ ferri chloridi.		
	Tincturæ nucis vomicæ, āā	ʒss	15 50
	Tincturæ cantharidis	3vi	23 40
	Syrupi simplicis	ʒii	62 20
	Aquæ q.s. ad	ʒvi	186 60

Misc. Sig. One teaspoonful three times a day.

COLIC.

Acute gastric and intestinal colic is one of the diseases frequently met with, especially in summer, that is often refractory to treatment so far as immediate relief is concerned. While by appropriate means the physician may readily, in a week or so, relieve the condition that causes the colic, it is the pain that the patient wishes to be rid of, and the physician is likely to be judged by his success in relieving that promptly. In such a case morphin is even more objectionable than usual, yet it is the surest means at hand. The physician early in his career finds that most of the ordinary remedies recommended for colic as a rule are failures. The following formula devised by H. C. Wood is simple and nearly always effective.

R.	Chloroform	fʒiss	6
	Tinct. opii, deod.		
	Ol. cajuput, āā	fʒi	4
	Aquæ, q.s. ad	fʒii	60

Misc. Fiat emulsion. Sig. A dessertspoonful every two or three hours if needed.

For severe colic with nervous symptoms in an infant, a formula of Hare's will be found very efficient, and at the same time free from serious objection.

R.	Chloral	gr. xvi	06
	Potassii bromid	gr. xxxii	2 13
	Aquæ menth. pip.	fʒii	60

Sig. Teaspoonful in warm water every four hours.

DIABETES INSIPIDUS.

R.	Pulveris opii	gr. iv	26
	Acidi gallici	3ii	7 80

Misc. Fiat chart no xii. Sig. One, three or four times daily.

H. C. Wood.

DIABETES MELLITUS.

In thin subjects with faulty assimilation.

R.	Acidi arseniosi	gr. ii	13
	Pulveris opii	gr. viii	52
	Ammonii chloridi	3iv	15 60

Misce. et ft. pil. No. xxxii. Sig. One pill thrice daily, after meals.

Marcus.

In obese persons.

R.	Aloes Capensis	ʒv	19 50
	Sodii bicarbonatis	ʒiss	46 60
	Spiritus lavandulæ comp.	ʒss	15 50
	Aquæ destillatæ	Oi	480

Macerate for four or five days.

Sig. Teaspoonful three times a day after meals.

Mettaver.

R.	Sodii salicylatis	3iii	11 70
	Liquoris potassii arsenitis	ʒi	3 90
	Glycerini	ʒi	31 10
	Aquæ cinnamomi ad	ʒiii	93 30

Misce. Sig. Teaspoonful to a tablespoonful three times a day.

J. C. Wilson.

R.	Extracti jambulæ fluidi	ʒi	31 10
	Liquoris arsenii bromidi	3ii	7 80
	Aquæ destillatæ ad	ʒii	62 20

Misce. Sig. Half a teaspoonful in water three times a day.

H. G. McCormick.

CATARRHAL PNEUMONIA OF CHILDREN.

R.	Ammonii carbonatis	gr. xxiv	1 50
	Syrupi tolutani	3vi	23 40
	Spiritus vini gallici	3iii	11 70
	Syrupi senegæ	3iiiss	13 65
	Syrupi acaciæ, q.s. ad	ʒiii	93 30

Misce. Sig. Teaspoonful every two hours for a child of two or three years.

Goodhart and Starr.

For the relief of irritability and restlessness, and to secure free elimination and a good action of the kidneys Dr. Frank S. Parsons recommends:

R.	Vini ipecacuanhæ	3i	3 90
	Potassii citratis	gr. xxx	1 95
	Tincturæ opii camphoratæ	3ii	7 80
	Elixir simplicis	ʒi	31 10
	Aquæ destillatæ q.s. ad	ʒiv	124 40

Misc. Sig. A teaspoonful to an infant six months old every two hours.

ALCOHOLISM.

The treatment as carried out at Bellevue Hospital is as follows:

R.	Strychninæ nitratis	gr. 1/16	004
	Atropinæ sulphatis	gr. 1/300	0002
	Aquæ destillatæ	m. x.	06

Misc. Sig. Inject three times daily.

Second day's injection.

R.	Strychninæ nitratis	gr. 1/20	003
	Atropinæ sulphatis	gr. 1/200	0003
	Aquæ destillatæ	m. x.	06

Misc. Sig. Inject three times daily.

STOMACHIC MIXTURE.

℞ Tincturæ cinchonæ comp.....m. xv | 72
Tincturæ capsici.....m. ss-i | 03-06
Tinct. solani carolinensis.....m. ii | 12
Vini ferri amari ad.....℥i | 3 | 90

Misc. Sig. Shake and take one teaspoonful three times a day.

SEDATIVE MIXTURE.

(First and second nights if needed.)

℞ Potassii bromidi.....gr. xxxii | 2 | 08
Chloralis.....gr. xvi | 1 | 04
Tincturæ valerianæ.....℥i | 3 | 90
Aquæ, ad.....℥iv | 124 | 40

Misc. Sig. Shake, and take one teaspoonful, repeated once, if needed.

Diet. One-half to one glass of milk (hot or peptonized), alternating with hot beef tea or broth, every two hours.

Stomach washing as necessary.

On being discharged the patient is given:

℞ Tincturæ calumbæ.....℥i | 31 | 10
Tincturæ capsici.....m. xv | 72
Tincturæ nucis vomicæ.....℥i-℥iiss | 31 | 10-46.65
Apomorphinæ.....gr. 1/8 | 008
Tincturæ cinchonæ comp. ad.....℥iv | 124 | 40

Misc. Sig. Teaspoonful in water after meals.

—*C. L. Dana.*

Jergolski claims that 8 drops of tincture of strophanthus three times a day will create a distaste for drink.

The following prescriptions have been recommended for alcoholism:

℞ Auri et sodii chloridi.....gr. 1/24 | 0027
Strychninæ nitratis.....gr. 1/60 | 001
Nitroglycerini.....gr. 1/100 | 00065
Atropinæ sulphatis.....gr. 1/200 | 00033
Digitalini.....gr. 1/60 | 001
Sodii chloridi.....gr. 1/8 | 008

M. Ft. tab. No. 1. For hypodermic use. —*Dunham.*

℞ Spiritus ammonii aromatici.....℥ii | 7 | 80
Tincturæ camphoræ.....℥iss | 5 | 85
Tincturæ hyoscyami.....℥iiss | 9 | 75
Spiritus lavandulæ comp. q. s. ad.....℥ii | 62 | 20

M. Sig. One teaspoonful every hour.

Tyson recommends the following to prevent the adynamia which may follow the sudden withdrawal of alcohol:

℞ Spiritus ammonii aromat.....℥ss | 1 | 95
Strychninæ.....gr. 1/30 | 002

M. Sig. For one dose. Repeat every three hours.

To relieve the symptoms of gastritis and the craving for alcohol:

℞ Decocti althææ.....℥v | 155 | 50
Aquæ chlori.....℥ii | 13
Sacchari.....℥ii | 13

M. Sig. Tablespoonful every two or three hours.

—*Zedekauer.*

DELIRIUM TREMENS.

The following combination is used at the Vanderbilt Clinic:

℞ Potassii bromidi.
Sodii bromidi ää.....gr. xv | 1 | 00
Chloralis.....gr. x | 65
Tincturæ zingiberis.....m. x | 60
Tincturæ capsici.....m. v | 30
Spiritus ammonii aromatici.....℥i | 3 | 90
Aquæ.....℥ii | 7 | 80

M. Sig. For one dose.

S. O. L. Potter says, "I never use opium or its derivatives, but rely on chloral, in full doses, gr. xxx (1.95 gm.) every two hours until sleep follows. If the heart will not bear chloral, I use duboisine, gr. 1/100 (.00065 gm.) hypodermically, and repeat if necessary after an hour, to produce sleep. In any case I fill the stomach with strong hot soup, containing plenty of pepper in the form of Tabasco sauce."

ACUTE PHARYNGITIS.

℞ Extracti eucalypti.....gr. xxx | 1 | 95
Sodii biboratis.....gr. x | 65
Pulveris pimentæ.....gr. vii | 46
Extracti glycyrrhizæ.....℥iiss | 9 | 75

M. Ft. massa in trochisci No. xxx, div.

—*Bosworth.*

A SPRAY FOR PHARYNGITIS SICCA.

℞ Acidi carbolici.....gr. x | 65
Tincturæ iodi.
Tincturæ aloes.
Tincturæ opii ää.....gtt. x | 5
Glycerini q. s. ad.....℥i | 31 | 10

M. Sig. To be used as a spray several times daily.

CHRONIC RHINO-PHARYNGITIS.

℞ Menthol.....℥i | 3 | 90
Olei amygdalæ dulcis.....℥x | 39

M. Sig. Apply locally with a brush.

—*Hamon de Fougeray.*

QUINSY.

℞ Tinct. veratri viridis (Norwood)..gtt. xxx | 1 | 5
Morphinæ sulphatis.....gr. iss | 098
Aquæ.....℥vi | 23 | 40

M. Sig. Dose for an adult one dram to be repeated according to judgment in one hour; then every two or three hours, according to the effect of the morphin.

℞ Acidi tannici.....℥i | 3 | 9
Glycerini.
Aquæ rosæ ää.....℥i | 31 | 10
Aquæ chloroformi.....℥viii | 248 | 80

M. Sig. Tannin gargle.

—*Clarence J. Blake.*

HABITUAL CONSTIPATION.

℞ Washed sulphur.....℥i | 4
Cream of Tartar.....℥i | 4
Senna leaves.....℥ss | 2
Powdered cardamom.....gr. i | 065
Syrup rhamnus cathartica q. s.
Make an electuary.

Sig. A teaspoonful night and morning.

This formula has an ancient appearance, but it has recently been published in some of the medical journals, and is credited to the *Journal de Medecine de Paris.* After all, not everything that is good is new.

Klemperer directs the injection of eight ounces of tepid water on retiring, allowing it to be retained until absorbed. Increase the quantity progressively each night while lowering the temperature of the water. If necessary, give an ordinary injection in the morning. Four to six weeks suffices to establish unaided defecation.

Deaths and Obituaries.

W. A. DIXON, M.D., Ripley, Ohio, died at the Good Samaritan Hospital in Cincinnati, June 24. The doctor was born near Ripley in 1835, and in 1856 entered the University at Delaware, Ohio, after which he engaged in educational work, and during his teaching read medicine to later enter Jefferson Medical College, Philadelphia. In 1862 he became a contract surgeon in the army, under General W. T. Sherman, his service continuing through the campaign, which ended with the fall of Atlanta, when he was assigned to the general hospital, and there remained until the close of the war. After the war he took his degree in medicine from the Ohio Medical College, later locating in Ripley. Besides being a member of the Ohio State Medical Association, he was a member and regular attendant of the AMERICAN MEDICAL ASSOCIATION, where he has also presented a number of papers.

ROBERT LAUGHLIN REA, M.D., a retired practitioner, died at his home in Chicago, July 11. Dr Rea was born in Virginia in 1827, and received his degree of M.D. from the Medical College of Ohio in 1855. Soon after he was elected demonstrator of anatomy in that institution, continuing in that relationship until the spring of 1857, when he resumed practice in Oxford, Ohio, and there delivered courses of lectures on anatomy and physiology in the Western Female Seminary. He came to Chicago in 1859 and was appointed professor of anatomy in Rush Medical College. He was later connected with the Chicago Medical College and in 1882 accepted the chair of surgery in the College of Physicians and Surgeons, Chicago, from which he retired four years later.

WILLIAM HOWARD NEILSON, M.D., Bellevue, N. Y., 1891, died at his home in New Rochelle, N. Y., July 6, aged 41 years. He was born in New Brunswick, N. J., and at time of his death was an alderman of the town.

GEORGE THOMAS DUTCHER, M.D., College of P. and S., N. Y.,

1894, died June 23, aged 30 years, in Pasadena, Cal. His residence began there soon after his graduation.

JAMES O'REILLY, M.D., Burlington, Vt., 1875, of New York, died from paralysis June 26. He was born in County Meath, Ireland, 71 years ago, was in part educated for the priesthood at Kilmore College, then studied medicine in Dublin, and finally came to this country, but retired from active practice about fifteen years ago.

W. A. GEORGE, M.D., Keasauqua, Ia., died on the train while en route from San Diego, Cal., June 3, of Bright's disease. Dr. George was born in 1853, and received his degree of M.D. at Bellevue in 1876.

E. S. GARNER, M.D., St. Joseph, Mo., a member of the Missouri State Board of Health and a graduate of the College of Physicians and Surgeons, New York City, died at his home, July 7.

Percy E. Cleveland, M.D., Nashville, died June 25, aged 37 years....Geo. V. Converse, M.D., Hillsboro, Ia., July 1, aged 41 years....Frederick W. Fabricus, Acting Assistant Surgeon, U. S. A., of yellow fever, at Santiago, Cuba, June 25....Nathaniel Green, M.D., Middletown, Conn., grandson of the Major General of the Revolutionary fame, at his home, July 8, aged 90 years....E. L. Hamilton, M.D., Richmond, Ark., July 5, aged 63 years....Frank E. Noble, M.D., Jersey City, N. J., June 29, aged 75 years....Henry G. P. Spencer, M.D., Jefferson, 1846, of Watertown, N. Y., Minneapolis, Minn., June 27, aged 78 years.

DEATHS ABROAD.

SIR WILLIAM HENRY FLOWER of London, Eng., born in Stratford-on-the-Avon, 1831, elected Fellow of the Royal College of Surgeons in 1857, and President of the Zoological Society, died July 2.

J. E. GRAHAM, M.D., died at Gravenhurst, Ont., July 7, from tuberculosis. In 1870 he was a resident physician in the Brooklyn City Hospital, N. Y., and in 1889 the President of the American Dermatological Association.

Book Notices.

Text-Book of Mental Diseases, with special reference to the Pathological Aspects of Insanity. By W. BEVAN LEWIS, L. R. C. P. (London), M. R. C. S. (Eng.). Second Edition, Thoroughly Revised, enlarged, and in Part Re-Written. With Illustrations in the Text, Charts, and Twenty-Six Lithographed Plates. Philadelphia: P. Blakiston's Son & Co. 1899.

This second edition of Dr. Bevan Lewis' well-known work has been largely re-written, especially in the first or anatomic section, to bring it up to the advances made in this department since the appearance of the earlier edition. The work has always been unique in the fullness of its anatomic descriptions, and its reputation will evidently be maintained. In its clinical section it has never been so thorough and satisfying as is demanded of a text-book, and this edition is in some respects an improvement over its predecessor, but it still has its deficiencies. The changes are a chapter on progressive systematic insanity, which was needed, and some minor additions and alterations. The work is still unequal in this department, some subjects being treated fully and satisfactorily, others altogether too meagerly. The treatment of the paranoiac and other degenerative conditions of mental disorder, such as circular insanity, is unsatisfactory, and primary confusional insanity, the importance of which is nowadays coming to be recognized, is not mentioned at all. On the other hand, paresis, alcoholic and epileptic insanity are quite fully treated. As a whole the work is an excellent one for reference in the library of the specialist or the practitioner who is interested in its subject, but as a text-book for students, it cannot very well supplant others already in the market.

Les projectiles des armes de guerre, *leur action vulnerante*, par les Drs. H. NIMIER, médecin principal de l'armée, professeur au Val-de-Grâce, et ED. LAVAL, médecin aide-major de 1re classe. 1 vol. in-12 avec gravures, 3 fr.—Félix Alcan éditeur. (Military Projectiles, their wounding action. By Drs. H. Nimier and Ed. Laval.)

This volume is the reproduction of lectures delivered at the Val-de-Grâce. It discusses the effects on the organism of both small arm and military projectiles, their action on the tissues, their effective zones, their moral effects, etc. It does not include the results of recent experience during the past year, but this does not make the work much less valuable as a theoretic and practical study of its subject.

Miscellany.

No Certificate, No Pay.—The court of civil appeals of Texas holds that there was no error in a refusal, in the case of Wilson vs. Vick, to allow a bill for medical services, because the facts did not show that the party claiming the compensation had received a certificate authorizing him to practice medicine, and that the same had been recorded as provided by the statute.

Not Evidence of Improper Treatment.—Evidence that the plaintiff in a personal injury case spoke bitterly against the physician who treated him, and that he discharged the physician, the supreme court of South Carolina holds, in Disher vs. Railroad Company, does not at all tend to prove that his injury was made permament by improper treatment of his physician.

One X-Ray Examination Enough.—The supreme court of Wisconsin holds that there was no abuse of discretion in refusing to compel the plaintiff, in the personal injury case of Bolter vs. the Ross Lumber Company, to submit to a second examination by the X-ray process. It recites that he had submitted to one such examination, lasting two hours or more, during which he was, by accident, burned, and had also permitted two of the defendant's medical witnesses to examine him, but refused to submit to another examination by such process. But just what importance it attaches to these points, respectively, it does not state.

Prohibited Disclosure.—An applicant for life insurance, in answering questions put to him, stated that he was in good health, had only had la grippe slightly, several times, and nothing more than la grippe or cold, in five years, but had consulted his physician four weeks previously for la grippe, or cold. He also denied ever having had certain named diseases; and the policy of insurance provided that if any of these answers were untrue, the policy should become null and void. When sued on this policy, the insurance company called as a witness the physician who was mentioned in the application, and, after the latter had testified that he had been consulted for la grippe, asked him whether he was consulted during this period for any other disease than la grippe. This was objected to as incompetent under the Michigan statute, which prohibits a physician or surgeon from disclosing any information which he may have acquired in attending any patient, in his professional character, and which information was necessary to enable him to prescribe for such patient as a physician, or to do any act for him as a surgeon. Under these circumstances, and the physician having further testified that all the information he had pertaining to any alleged complaints of the insured was acquired during the relation of physician and patient, and that he had no information pertaining to his condition aside from what he obtained by observation, and from his statements while acting as his physician, the supreme court of Michigan holds, Jones vs. Preferred Bankers' Life Assurance Company, that the question asked and objected to was incompetent and properly excluded.

Asbestos and Nasal Synechia.—A small piece of sheet asbestos has been found an ideal substance for the post-operative treatment of nasal synechia, soft, yielding, sterilized in the flame, and perfectly tolerated.—*Presse Med.*, June 21.

Reflected Light from Walls.—The percentage of light reflected from the walls of a room is largest with mirrors and white walls, respectively 92 and 70 per cent. Next comes light orange, 54.8; light green, 46.5; light yellow, 40; light blue, 30, and bright red, 16.2 per cent.—*Munch. Med. Woch.*, May 30.

Urticaria and Odors.—Joal reports three cases in which certain odors produced urticaria. In one the odors from aromatic essences used in the manufacture of liquors; in another, of iodoform, and a third the odor from roses, lilacs and hyacinths, accompanied in the two last cases with symptoms of hay-fever.—*Revue Hebd. de Laryng.*, June 10.

Staining Test of Red Corpuscles.—Iovane states that the red corpuscles stain blue with methylene blue in the newly-born as a physiologic phenomenon, but that when this occurs a few months later and after, it is pathognomonic of anemia, the degree proportional to the severity of the anemia and the disappearance of the stain a certain sign of return to normal.—*Pediatria*, 2.

Intoxication from Saline Injection.—Severe tenesmus, epithelial desquamation, cholera nostras and syncopal condition followed a rectal injection of a nearly saturated solution of coarse salt. Vermersch, who reports the case, advises the mention of table salt in ordering saline rectal injections and the indications of the precise amount, as a "pinch," "handful," etc., are terms too vague for the general public, always inclined to exaggerate doses.

Yeast and Levurin in Furunculosis.—The remarkably favorable results obtained in furunculosis, with yeast fresh from the brewery, has led to the production of an extract containing the active principles of the yeast, called Levurin by Couturieux, its inventor. One or two teaspoonfuls a day is the efficient daily dose and it is proving wonderfully effective, with no inconveniences of any kind from its use.—*Presse Medicale*, No. 46.

Function of Spleen.—The spleen was removed from a couple of dogs suffering with biliary fistulæ and the results demonstrated that the spleen is a reservoir for the pigment of the red corpuscles as they are normally or abnormally destroyed. The pigment is conveyed from the spleen to the liver where it is eliminated as bile pigment. If the spleen is removed the pigment is distributed throughout the entire circulation with the chief localization in the bone marrow and the bile abnormally poor in pigment.—*Policlinico*, March 1.

Health in Michigan.—Reports to the Michigan State Board of Health show that the diseases most prevalent in that state, during June, were rheumatism, neuralgia, bronchitis, diarrhea and tonsilitis. Compared with the preceding month, cholera morbus, typhoid fever, diarrhea, inflammation of bowels and consumption increased, and pneumonia, influenza, scarlet fever, measles, pleuritis and cerebrospinal meningitis decreased in area of prevalence. Compared with the average for June in the thirteen years, 1886-98, cerebrospinal meningitis was more prevalent, and whooping-cough, diphtheria, pneumonia, erysipelas, scarlet fever, remittent fever, intermittent fever, influenza, measles, consumption and pleuritis less prevalent. Reports from all sources show consumption reported at 22 places more; measles at 38; scarlet fever at 14 places less; typhoid fever at 14 and diphtheria at 5 places more; whooping-cough at 7, and cerebrospinal meningitis at 26 places less and smallpox at 2 places more, in June, 1899, than in the preceding month.

Regulation of Privy Vaults.—The third appellate division of the supreme court of New York says, in the recently decided case of Cartwright vs. the Board of Health of the City of Cohoes, that the legislature may lawfully confer on the board of health the power to enact sanitary ordinances having the force of law within the localities for which they act. That privy vaults in a city may be detrimental to the public health, when located near to inhabited dwellings or places of business, it also thinks, needs very little argument to prove; and, within established principles, they are eminently proper subjects for regulation by boards of health. More specifically does the court hold that an ordinance or regulation of a board of health is reasonable which provides that "No owner, lessee, occupant or agent of any building or premises shall maintain within the city any privy, privy vault or cesspool made or built in the earth within twenty-five feet of any door or window of any residence upon such premises, or any residence upon the adjoining premises, and such maintenance of any privy, privy vault or cesspool is hereby declared to be a nuisance and condition detrimental to life and health. And any or all privies, privy vaults and cesspools existing within the city shall be removed or filled up by the owner, lessee, occupant, agent or other person having charge or control of the premises on which they exist, whenever the same becomes a nuisance and condition detrimental to life and health, by rendering the soil, air or water impure, injurious, unwholesome, or they constitute a condition of any kind detrimental to life and health." The ordinance being a reasonable one,—one that the board had a right to pass,—the court further holds that the board had a right to enforce it in the manner provided by the statute, even though that involved, to some extent, the destruction of the plaintiff's property. Moreover, under the New York statute, the court holds that the board of health could have acted on its own inspection and knowledge of the premises, and was not obliged to hear anybody.

Physical Examination as a New Question.—In the recent personal injury case of Mary Elizabeth Lane vs. the Spokane Falls & Northern Railway Co., the supreme court of the state of Washington takes up the important question, here presented to it for the first time, of whether the courts of that state have the power to compel one who sues to recover damages for injuries to his person to submit to an examination by medical experts appointed by the court, for the purpose of ascertaining the nature, character, and extent of his injuries. It explains that actions of this character have, in recent years, become so numerous that the question is of far greater importance than it could possibly have been twenty-five years ago, and that it is not surprising that most of the cases in which the question has arisen or is discussed at all are of recent origin. In Iowa, Nebraska, Kansas, Wisconsin, Alabama, Arkansas, Ohio, Michigan, Georgia, Minnesota and Missouri, it continues, it has been held that the court possesses the inherent power to make such an order; while in Illinois, New York, Indiana, and the United States supreme court the power is denied. For itself, the court indorses and adopts the view expressed in a dissenting opinion in the supreme court of the United States, "that a party who voluntarily comes into court alleging personal injuries, and demanding damages therefor, should permit disinterested witnesses to see the nature and extent of those injuries, in order that the jury may be informed thereof by other than the plaintiff and his friends, and that compliance with such an order may be enforced by staying the trial or dismissing the case." It is to be presumed, further says the supreme court of Washington, that, in exercising this power, the trial court will always see that only proper physicians or surgeons, and where possible, wholly disinterested ones, are appointed to conduct the examination, and that the expense of such examination should be borne by the party requesting it. Care, it adds, should be exercised to avoid all unnecessary inconvenience and annoyance to the plaintiff, and, when desired, it should be made in the presence of the counsel and friends of the party to be examined, and the trial court should be free to exercise that sound discretion which the nature of the case and the ends of justice may require.

Does Life Insurance Lead to Suicide?—In a recent statement to the *Philadelphia Ledger*, L. G. Fouse, president of the Fidelity Mutual Life Insurance Company of Philadelphia, said: "Every manager of a life insurance company who wants to be frank must recognize that a large proportion of the suicides occurring within the first policy year are deliberate and intentional suicides, and planned at the time the policy was taken out. These people usually take large amounts. That there is a great amount of fraud of this kind is not a matter of conjecture." It was even stated that several years ago an insurance company gave out that they would pay suicide claims without question, with the result that an unduly large proportion of suicides occurred in members of that company. A table recently published by one of the insurance companies gives figures showing that the suicide rate for forty-five cities of the United States during 1889 was 12.7 per 100,000, and in 1898 the rate had increased to 17 per 100,000. The suicide clause, as now generally inserted by insurance companies, stipulates that payments will not be made in those cases where suicides occur within two or three years of the time the policy was written. After that time has elapsed it is considered that the insured person did not contemplate suicide at the time of taking the insurance. It was further stated that one reason the companies do not contest these cases is because it is feared that public sentiment would be raised against them. On the other hand, Henry C. Lippincott, manager of agencies of the Pennsylvania Mutual Life Insurance Company, stated that he knew of at least one company which did not contain a clause with reference to suicide, and that an increase of suicides had not occurred. In reply to the question of statistics on this question he replied that statistics could be made to prove almost anything. According to a recent decision made in the state of Missouri, under the statute governing certain classes of insurance companies, it is no defense against the payment of the policy that the insured committed suicide, unless it be shown that he contemplated suicide at the time the policy was written.

Medical Practice in Illinois.—At the present time the subjects on which examination is required by the Illinois State Board of Health, for medical practice in Illinois are the following: anatomy, chemistry, gynecology, hygiene, materia medica and therapeutics, medical jurisprudence, obstetrics, pathology and bacteriology, practice of medicine, physiology, and surgery. At the quarterly meeting of the Board, July 11, the first held under the new medical practice act, the following rules among others were adopted:

State certificates authorizing the practice of medicine and surgery in the State of Illinois are issued by the State Board of Health on complying with the following requirements, based on the Act to Regulate the Practice of Medicine in the State of Illinois, in force July 1, 1899.

1. The applicant must present to the State Board of Health for verification at the office of the secretary, in Springfield, or in Chicago, at the time of the examination, the diploma or license of a legally chartered medical institution in good standing. The diploma or license should be forwarded, prepaid, by express or registered mail. If by mail, letter postage must be affixed to the package.

2. Said diploma or license must be accompanied by the affidavit of the holder and applicant that he or she is the lawful possessor of the same, and is the person named therein. The affidavit must show, also, the number of years the applicant has studied medicine, including the time spent in attendance at medical colleges.

3. The affidavit must be accompanied by letters of recommendation with regard to the moral and professional character of the applicant from at least two reputable men who live in Illinois, or, if from non-residents of the state, such letters must be endorsed by reputable medical men of Illinois.

4. The applicant must pass an examination in those general subjects and topics a knowledge of which is commonly and generally required of candidates for the degree of Doctor of Medicine by reputable medical colleges in the United States.

5. The fee of $10 for an examination must be paid in advance. If not paid in person, the fee should be transmitted by postal money order, draft or check made payable to the secretary of the State Board of Health. No responsibility will be assumed for fees transmitted in any other manner.

The fee of $5 for a certificate can be paid in advance, or when the applicant is notified that a certificate will be issued.

6. Persons desiring to take an examination, should file their applications with the secretary as soon as possible, so as to enable the board to determine as far as practicable the number to arrange for. It is preferred that the affidavit and letters of recommendation be submitted in due form to the secretary at Springfield before the examination.

Examinations will be held quarterly in Chicago, at the Great Northern Hotel, or, in exceptional instances, in the office of the board at Springfield.

At the same meeting the board adopted the following resolution:

WHEREAS: Section 2, of an Act to Regulate the Practice of Medicine in the State of Illinois, and to repeal an act named therein, approved April 24, 1899, in force July 1, 1899, gives the State Board of Health discretionary power as to granting certificates to graduates of legally chartered medical colleges in Illinois in good standing as may be determined by the board, and,

WHEREAS: It is evident, notwithstanding the discretionary power given the board, that the true intent and purpose of this Act is to require all persons to prove their qualifications to the State Board of Health by passing an examination; therefore, be it

Resolved: That all apllicants for a state certificate to practice medicine and surgery in the state of Illinois, who are graduates of medical colleges in good standing, as may be determined by this board, shall, before receiving a certificate, be obliged to pass an examination such as contemplated in Section 2, of an Act to Regulate the Practice of Medicine in the State of Illinois, in force July 1, 1899.

Resolved: That the phrase "medical college or institution in good standing," in the first paragraph of Section 2, of the Act to Regulate the Practice of Medicine in the State of Illinois, in force July 1, 1899, is hereby defined to include only legally organized, properly conducted medical institutions, having a sufficient and competent corps of instructors and ample facilities for teaching, dissections, ambulatory and hospital clinics, which conform to the requirements relative to the preliminary education of matriculants, the course and period of study, the number, character and length of lecture terms, the duration of attendance on hospital and clinical instruction, which obtain in the majority of medical colleges in the United States.

The Illinois State Board of Health, however, will not consider in good standing, after Jan. 1, 1900, any medical institution which does not require of all students (excepting graduates of reputable colleges of arts and sciences, or reputable colleges of dentistry, pharmacy or veterinary medicine, to whom one year's advanced standing may be granted), as a condition of graduation, an attendance of four full courses of lectures of at least six months each, in four separate years, no two courses commencing or ending in the same calendar year of time.

Resolved: That no medical college issue a catalogue of announcement in which are contained misrepresentations respecting its teaching, clinical or hospital facilities, its faculty or its courses of study, or false representation as to the number of students matriculated or in attendance, will be regarded as in good standing.

Proper Subject of Autopsy.—Article 1024A of the Texas Code of Criminal Procedure authorizes the justice of peace, whenever an inquest is held to ascertain the cause of death, to call in some regular practicing physician, if he deems it necessary, and it is impracticable to secure the services of the county physician to make an autopsy in order to determine whether the death was occasioned by violence; and if so, "the nature and character of the violence used." Now what meaning is to be given to the words in quotation marks? Are they to be restricted to the ascertainment of the physical nature of the violence, or is their meaning to be so extended as to include the circumstances attending the act, which may disclose its moral quality? The broader sense is decided on by the supreme court of Texas; in the case of Polk County vs. Phillips. More specifically, it holds that the calling in of a physician for the purpose of determining whether the deceased was, at the time of the assault on him, lying down, as testified to by one witness, or whether he was on his feet, resisting his arrest with deadly weapons, as testified to by other witnesses, was a purpose contemplated by the statute. The sole object of

the statute which provides for an inquest on a dead body, the supreme court says, is to aid the enforcement of the law by the detection of crime, in case an offense has been committed. In accomplishing the purpose of the inquest, it is as important to determine the characteristics of an act of violence which has led to a death as it is to determine the fact that there was violence, and that death was its result. Hence, the liberal construction of the statutory provision in question.

Warranty Against Using Insurance and Intoxicants.—An applicant for life insurance agreed and warranted that he would not use intoxicating liquors to excess. When subsequently sued for the insurance, the company pleaded this as a defense, averring, as a breach of the warranty, that, after the to excess, until he became a physical wreck, and that such dissipation contributed to his death. The parties seeking to recover the insurance replied that, before the date of the application for the insurance, and before the issuing of the policy, the insured had used intoxicants to excess to such an extent as to render him diseased from such dissipation, which disease affected him at the time of said application, of which the company had knowledge at the time of application, and thereafter, before the issuing and delivering of the policy; that the diseased condition continued until his death, and his return to such dissipation was merely a recurrence of the disease, over which he had no control. Their counsel quoted from eminent writers on medical jurisprudence, showing that drunkenness is a disease, and that it is liable to occur periodically, and argued from these facts that the company, knowing that the insured was diseased, and the cause of it, having issued the policy, could not then honestly refuse payment. But the decision on this point, of the appellate court of Indiana, is with the insurance company. It pronounces the agreement a promissory warranty; holds that it contravened no rule of law, and that it should be enforced. The court says, Northwestern Life Assurance Company vs. Bodurtha, that it thinks it would be a dangerous precedent to hold that the deplorable conditions, physical and mental, which are likely to follow the immoderate use of intoxicants, should preclude business transactions with one who in the past may have been the victim of the habit, but who promises to be temperate in the future, and to release such party from the obligations of a valid contract because of his failure to keep his promise.

Varieties of, and Post-Mortem Findings in, Deaths From the Plague.—Since the plague has gained such prominence in the thoughts of the medical world it seems fitting to review somewhat the literature of the disease. From the reports, it might at first be thought that in all cases in which death occurs from the plague, there had been suppurating buboes present during life; but this does not necessarily occur. So far all the data regarding the disease has not found its way into the text-books on this side of the Atlantic, and any reliable information bearing on the subject becomes of considerable importance at this time. Probably one of the best and most satisfactory reports yet made is that of the Arthur Road Hospital of Bombay, 1897. The report is made by Khan Bahadur N. H. Chosky, Extra Assistant Health Officer of the Bombay municipality, and is based on a series of 939 cases of bubonic plague. The work is mainly the work of the hospital staff in conjunction with members of the Austrian Commission, consisting of Dr. Heinrich Albrecht, Dr. A. Ghon, Dr. Franz Muller (Privat-Docent at the Klinik Nothnagel, Vienna), and Dr. R. Poch. The post-mortem appearances described were from a series of 54 autopsies, mostly conducted by Dr. Heinrich Albrecht and his assistant, Dr. Ghon.

The following types of the disease have been described: 1. Pestis minor, or extremely mild plague. 2. Pestis ambulans. 3. Pestis simplex bubonica, or simple bubonic plague. 4. Pestis septica or septic plague. 5. Pestis pulmonalis, or pneumonic plague. 6. Non-typical forms of plague. Of the first variety, there were but few treated in the Arthur Road Hospital. It is ordinarily attended by a slight febrile reaction, and pain over the deep-seated glands—generally femoral or inguinal—which may be still enlarged, but without any exudation around them. Of the treatment, all that had been recommended was a general aperient and some fomentation, the patient usually being able to return to work within three or four days. The report further says: "It is needless to add that such glandular swellings subside and totally disappear within three to four days, and it is probable that this was the character of the majority of the 'early' cases so-called that gave such favorable results with Yersin's serum." Of the second variety, only a few cases were treated. The history is that of one suffering from sudden fever of short range, with glandular enlargement, pain and tenderness of the glands, the patient being confined to the bed for three or four days without much systematic disturbance. "He does not feel himself sufficiently ill to consult a medical man; perhaps takes rest and shakes off the fever, and then goes about with an indolent swelling for a few days." It is the simple bubonic and septic forms of plague that are so characteristic of the disease.

Of the 939 cases of plague admitted, 8.83 per cent. had no buboes. Most of the latter (8 per cent.) belonged to the pneumonia type. The regions affected by buboes were: femoral, 32.12 per cent; femora-inguinal, 23.36 per cent.; axillary, 16.35 per cent.; inguinal, 12.38 per cent.; cervical, 5.25 per cent.; multiple, 4.67 per cent. It is stated that the buboes present a characteristic appearance. In the early stages, if incised, free hemorrhage occurs, and on section the gland appears as a swollen mass of an intensely brownish-red, brick-red or purplish color, and occasionally a thick black streak has been observed running through it. Once the buboes form, they either resolve, or else end in suppuration and sloughing. On the first day of sloughing the bacilli were always found in the pus, gradually diminishing until finally the discharge becomes sterile. In pestis pulmonalis, or pneumonic plague, the lungs seem to be primarily infected, thus causing a primary pneumonia. At the autopsies, deep-seated axillary buboes were nearly always found. In this form the sputum is usually laden with bacilli.

The non-typical forms of plague generally occurred during the subsidence of the epidemic. This type was generally manifested by a slight rise of fever, diffuse swelling mostly confined to the region of parotid and cervical glands, absence of glandular enlargements or pain, and gradual subsidence under the administration of cold applications, and of calcium chlorid internally. The post-mortem findings were very complete. This report begins as follows:

If it were possible to convey in one word the *principal post-mortem changes* that are found in the system, that word would be *hemorrhage*—hemorrhages in every conceivable and inconceivable part of the body, hemorrhages in the dura mater, larynx, mediastinum, pleura, pericardium, lungs, stomach, intestines, kidneys, liver, spleen, bladder, intima of the vena cava and jugular vein, hemorrhages around the buboes, subcutaneous tissue of the neck, arm, forearm, thigh, and retroperitoneal connective tissue. These hemorrhages were observed in all the fifty-four autopsies that were made. The brain meninges, spinal cord and esophagus showed few changes other than congestion. The pharynx in many cases was covered over with a false membrane, as was also the larynx, the latter often being edematous. The thyroid was generally normal, the lungs were generally "blood full," and in most cases when there was not much extensive pneumonia, greatly edematous. On section a large amount of serosanguineous fluid flowed out of them—in fact they seemed to be thorougly soaked in like a sponge. The mucus in the bronchioles was blood-tinged. If pneumonia existed it was the characteristic lobular type, in isolated patches, having a mottled gray appearance. The heart muscle showed evidences of acute degeneration, generally fatty. The cavities were generally dilated. Hemorrhages were found on the pericardium, epicardium, and endocardium. The stomach was hardly ever normal, the mucous membrane being bile-stained and showing hemorrhages which were extremely characteristic in that they were always punctate, as those along the entire intestinal tract. The liver generally appeared slightly swollen.

"blood full," and in a state of acute infective degeneration, occasionally fatty. Its substance was soft, and the capsule at times adherent. In one case emboli of plague bacilli were found. The spleen was generally enlarged, but not usually to such a degree as to be detected during life. It was usually in a state of acute degeneration. Hemorrhagic infarcts were noticeable on its surface beneath the capsule, and occasionally small abscesses and cysts were present. On section the color was of a deep chocolate brown. The Malpighian bodies were swollen and could occasionally be distinctly seen, and so also the trabeculæ and fibrous structure. In cases that had suffered from malaria, the peculiar dark pigmentation due to it was also noticed. The kidneys were in a state of acute parenchymatous degeneration, the capsule adherent and stellate. In the substance hemorrhages and hemorrhagic infarcts were found. Small cysts and abscesses were also observed. The suprarenals were normal. In the mesentery hemorrhages were found, also in the retroperitoneal connective tissue and in the loose connective tissue in the abdomen, surrounding the various organs. The mesenteric glands were not often very much enlarged or infected. Hemorrhages were also noticed on the ovaries, and in the intestines, small and large punctate ones. The mucous membrane was usually inflamed. The marrow of the long bones, as the femur, was often noticed in a state of acute red degeneration, and the synovial fringes of the knee-joint distinctly infected. The buboes were quite characteristic, and such as are not met with in any other affection. They were swollen, enlarged and surrounded by serosanguineous or hemorrhagic exudation. On section they appeared of a dark purplish color and "blood full."

In no case was the plague attributed to ratbites, either immediately or some time previous to infection. And as regards flies and fleas, ants, bugs and even mosquitoes, however enticing the theory appeared as tending to solve the difficult problem, it was more fanciful than real, appealing as it did more to the imagination than to common sense.

"Apart from the above mentioned modes (1, through the skin; 2, from the contents of buboes; 3, sputum), it is but reasonable to assume that the plague epidemic which progresses like a regular wave from one end of the country to the other, either slowly or rapidly, generally the former, infects those susceptible to infection through the atmosphere, as in influenza and other similar infections, and in acute infection of this kind, pervading so insiduously and so widely, atmospheric agency must be a potent factor."

Philadelphia.

SAFE-GUARDS AGAINST DISEASE.—J. Lewis Good, chief of the Bureau of Health of Philadelphia, has been quite active of late in making provision for the prevention of yellow fever or any other infectious disease. After a thorough inspection of the Federal Quarantine station and its equipments, at the Breakwater and Reedy Island, it is believed that any sporadic case which comes to those places will be speedily detected and placed in quarantine.

MORTALITY STATISTICS.—The number of deaths during the past week was 435, an increase of 15 over last week, and a decrease of 285 over the corresponding period of last year. Of the total number, 189 occurred in children under the age of 5 years. The principal causes were: Apoplexy, 13; nephritis, 30; cancer, 7; cholera infantum, 52; tuberculosis, 46; heart disease, 27; pneumonia, 21; appendicitis, 1; marasmus, 18; rheumatism, 4; paralysis, 2; suicide, 4.

WATER FILTERS FOR PUBLIC SCHOOLS.—The Committee on Hygiene, of the Board of Education, have for some time been investigating the different varieties of filters to be placed in the public schools of Philadelphia. Since it is known that many children drink the water as it comes from the hydrants, even in a spirit of defiance to the restrictions, it becomes evident that such a safe-guard is very essential in preventing the spread of typhoid fever. A filter has been selected which is supposed to be 95 per cent. germ-proof. The sum of $37,000 will be expended in placing the filters in the schools.

ROOF GARDEN FOR CHILDREN'S HOSPITAL.—In memory of his sister, Dr. T. W. Wilson has recently presented the Children's Hospital with a roof garden, provided with all the necessary arrangements for obtaining fresh air and sunshine for the invalids of that institution. It is believed that this provision will be instrumental in lowering the infant mortality, especially during the summer months. The new addition costs about $5000

"GLORIOUS FOURTH" IN PHILADELPHIA.—From a medical standpoint the nature of the injuries and the weapons by which wounds were inflicted in July 4 celebrations, in Philadelphia, are of interest. The small toy pistol and the toy cannon, while innocent looking, are almost as dangerous as the fire cracker. The three injuries most frequently met with were burns of hands and fingers (53); burns of the eyes (43); burns of the face (35); and gunshot wounds of the hand (30). Of these injuries it is supposed that at least four people will partly, if not totally, lose their eyesight, while in many instances amputations have already been made.

Queries and Minor Notes.

MEDICAL PRACTICE.

MORRISONVILLE, ILL., June 29, 1899.

To the Editor:—Some time ago I saw in the JOURNAL an article giving the medical practice acts or legal requirements of the States. I wish to know the law or legal requirements in Colorado or California and can not find that article. Respectfully, R. W. R.

ANSWER:—The article referred to is the notice of the report of the Illinois State Board of Health published in the JOURNAL of Nov. 12, 1898. There have been, so far as we are aware, no changes in the laws of California or Colorado since that date, a law which passed the legislature in the latter State having been vetoed by the Governor. In each the presentation of a diploma from a recognized medical college suffices to obtain a certificate from the Board of Examiners; in Colorado, failing a diploma, a successful examination will also admit to practice.

"APPENDICEAL" OR "APPENDICULAR"?

CHICAGO, ILL., July 14, 1899.

To the Editor:—Of late I have several times noticed the use of the word "appendiceal" as an adjective relating to conditions of the appendix. Having "consulted the authorities," and vainly, for its origin or sanction, I seek the columns of the JOURNAL in the hope of being enlightened. Is "appendiceal" a proper term, or is "appendicular" the correct thing?

W. B. H.

The Public Service.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., to and including July 6, 1899:

Charles Norton Barney, acting asst.-surgeon, from San Francisco, Cal., to Manila, P. I., by the *Para*, July 12, 1899.

Frank W. Dudley, acting asst.-surgeon, to Manila, P. I., by the *Para* July 12, 1899.

Basil H. Dutcher, lieutenant and asst.-surgeon, U. S. Army, relieved from present duties to proceed to San Francisco, Cal., for service in the Department of California.

Julius J. Escobow, acting asst.-surgeon, from Washington, D. C., to Havana for duty in the Division of Cuba.

Charles E. B. Flagg, captain and asst.-surgeon U. S. Army, to San Francisco, for duty in the Department of California.

Frank W. Foxworthy, acting asst.-surgeon, to Manila, P. I., by the *Para*, July 12, 1899.

S. J. Fraser, acting asst.-surgeon, to Manila, P. I., by the *Para*, July 12, 1899.

Louis L. Gilman, acting asst.-surgeon, from Rochester, New Hampshire, to Fort Ethan Allen, Vermont.

Henry S. Greenleaf, lieutenant and asst.-surgeon U. S. Army, to San Francisco for duty in the Department of California.

Stevens T. Harris, acting asst.-surgeon, from Carrollton, Georgia, to San Francisco, Cal.

Edward P. Haywood, acting asst.-surgeon, to Manila, P. I., by the *Para*, July 12, 1899.

Deane C. Haword, captain and asst.-surgeon U. S. Army, detailed temporarily as a member of a retiring board convened in New York City.

S. Chase de Kraft, acting asst.-surgeon, from Cambridge, Md., to San Francisco for duty in the Department of California.

Julius C. LeHurdy, acting asst.-surgeon from Savannah, Ga., to San Francisco for duty in the Department of California.

Henry Lippincott, lieutenant-colonel, deputy surgeon-general U. S. Army, president of a board convened at Denver, Colo., to examine persons designated for appointment as second lieutenants in the army.

Willard S. H. Matthews, major and surgeon Vols., from the general hospital at San Francisco, Cal., to Manila, P. I., for assignment.

John R. McDill, acting asst.-surgeon from Milwaukee, Wis., to San Francisco for temporary duty in the Department of California.

Clarence B. Millhoff, lieutenant and asst. surgeon U. S. Army, from Camp Meade, Middletown, Pa., to Manila, P. I., accompanying the 19th U. S. Infantry.

Curtis E. Munn, major and surgeon U. S. Army, member of a board in Denver, Colo., to examine persons designated for appointment as second lieutenants in the Army.

George Newlove, acting asst.-surgeon, from Somertown, Philadelphia, Pa., to Fort Leavenworth, Kans., for duty.

Otway W. Rash, lieutenant and asst.-surgeon, U. S. Army, to San Francisco for duty in the Department of California.

Robert P. Robins, acting asst.-surgeon, from Philadelphia, Pa., to duty in the Department of California.

Ernest C. Schultze, acting asst.-surgeon, from New York City, N. Y., to the Department of California.

Gilbert E. Seaman, acting asst.-surgeon, from Milwaukee, Wis., to the Department of California.

Eugene L. Swift, captain and asst.-surgeon, U. S. Army, from Fort Slocum, N. Y. to San Francisco for temporary duty in the Department of California.

James W. Van Dusen, acting asst.-surgeon, from Norwalk, Ohio, to duty in the Department of California.

Richard Wilson, acting asst.-surgeon, from the Department of Porto Rico to duty in the Department of Santiago, Cuba.

Ezra Woodruff, major and surgeon U. S. Army, from Fort Trumbull, Conn., to Camp Meade, Middletown, Pa.

Appointment of Surgeons and Assistant-Surgeons of Volunteers.—On July 7, 1899, announcement was made by the War Department of the names of the medical men selected by the President as the surgeons and assistant-surgeons of the Volunteer regiments that are to be raised for service in the Philippines. Only two of these appointments are promotions of medical officers of the regular medical corps. The following are the names in order of rank:

Surgeons with the rank of major:—Ogden Rafferty, captain and asst.-surgeon, U. S. Army, late brigade surgeon, Vols. Charles F. Mason, captain and asst.-surgeon, U. S. Army, late brigade surgeon, Vols. John R. McDill, late brigade surgeon Vols. Frank C. Armstrong, late surgeon 21st Kansas. Thomas W. Chalmers, late surgeon 12th New York. Charles L. Z. Anderson, late asst.-surgeon U. S. Army and at present an acting asst.-surgeon. B. Albert Lieberman, late surgeon 6th Missouri. Joseph N. Henry, late surgeon 4th U. S. Vol. Infantry.

Assistant-surgeons with the rank of captain:—John B. Hereford, late surgeon 1st Missouri. James C. Minor, late surgeon 1st Arkansas. Frank W. Foxworthy, late asst.-surgeon 160th Indiana. Abram L. Haines, late surgeon 203d New York. James J. Erwin, late asst.-surgeon 10th Ohio. W. E. Parker, late acting asst.-surgeon. James E. Shellenberger, late surgeon 3d Ohio.

Assistant-surgeons with the rank of first lieutenant:—William H. Cook, acting asst.-surgeon. Lomax S. Anderson, late asst.-surgeon 5th U. S. Vol. Infantry. Leonard K. Graves, late asst.-surgeon 201st New York. Ralph S. Porter, late asst.-surgeon 2nd Illinois. John A. Metzger, acting asst.-surgeon. Patrick J. McKenna, late asst.-surgeon 2nd U. S. Vol. Engineers. Albert H. Eber, late asst.-surgeon 35th Michigan. John E. Boyd, late captain 2nd South Carolina.

Movements of Navy Medical Officers.—Changes in the medical corps of the U. S. Navy for the week ending July 8, 1899:

June 30.—Asst.-Surgeon Ralph W. Plummer, appointed asst.-surgeon from June 17, 1899.

July 3.—Medical Inspector J. C. Wise, granted sick leave for three months.

Marine-Hospital Changes.—Official List of Changes of Station, and Duties of Commissioned and Non-Commissioned Officers of the U.S. Marine-Hospital Service, for the seven days ended July 6, 1899.

Surgeon R. D. Murray, to defer departure to Key West, Fla., (as directed by Bureau letter of May 15, 1899) until further orders, and to proceed to New Orleans, La., for special temporary duty.

Surgeon Eugene Wasden, to proceed to Norfolk, Va., and assume temporary charge of the Service at that port not later than July 17, 1899.

Asst.-Surgeon W. R. McAdam, Bureau letter of May 15, 1899, relieving Asst.-Surgeon McAdam from duty at Key West, Fla., revoked and directed to reassume command of the Service at Key West.

Asst.-Surgeon D. E. Robinson, relieved from duty at Chicago, Ill., and directed to proceed to Mobile, Ala., and report to the commanding officer for duty and assignment to quarters.

Acting Asst.-Surgeon G. H. Altree, granted leave of absence for four days.

Acting Asst.-Surgeon L. C. Bean granted leave of absence for two days.

APPOINTMENTS.

Fred C. McIsaac appointed acting asst.-surgeon, U. S. Marine-Hospital Service, for duty at Evansville, Ind.

RESIGNATION.

Sanitary Inspector W. F. Brunner, resignation accepted as tendered, to take effect June 30, 1899.

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General of the U. S. Marine-Hospital Service, during the week ended July 1, 1899:

SMALLPOX—UNITED STATES.

Georgia: Savannah, June 18, 5 cases.
Illinois: Chicago, June 24 to 30, 2 cases.
Indiana: Evansville, June 24 to July 1, 6 cases.
Kentucky: Louisville, June 24 to 30, 4 cases.
Louisiana: New Orleans, June 24 to July 1, 2 cases, 1 death; Shreveport, June 24 to July 1, 1 case.
Massachusetts: Boston, June 30 to July 1, 2 cases, 1 death; Fall River, June 27, 1 case.
New York: New York, June 24 to July 1, 7 cases.
North Carolina: Charlotte, June 24 to July 1, 2 cases.
Ohio: Cincinnati, June 23 to 30, 1 case; Cleveland, June 24 to July 1, 2 cases.
Oregon: Portland, June 29 to date, 4 cases.
Pennsylvania: Allegheny Co., June 3 to 26, 11 cases; Belle Vernon, June 3 to 26, 1 case; Brownville Township, June 3 to 26, 34 cases; Cambria Co., June 3 to 26, 22 cases; Clearfield Co.; June 3 to 26, 1 case; Fayette Co., June 3 to 26, 10 cases; Jefferson Co., June 3 to 26, 5 cases; Philadelphia, June 3 to 26, 40 cases; Somerset Co., June 3 to 26, 9 cases; Washington Co., June 3 to 26, 11 cases; Westmoreland Co., June 3 to 26, 1 case; at Penn Station, several.
Virginia: Norfolk, July 2, 1 case; to date, 825.
Washington: Wallawalla, June 29, 8 cases.
West Virginia: Benwood, July 1, 1 case.

SMALLPOX—FOREIGN.

Belgium: Antwerp, June 10 to 17, 3 cases, 1 death.
Brazil: Bahia, June 10 to 17, 1 case; Rio de Janeiro, May 19 to 26, 16 deaths.
China: Hongkong, May 4 to 27, 5 cases, 2 deaths.
Cuba: Havana, June 29, 1 death.
England: Liverpool, June 10 to 17, 1 death; London, June 10 to 17, 1 case; Gibraltar, June 5 to 11, 1 case.
Greece: Athens, June 10 to 17, 82 cases, 7 deaths.
India: Bombay, May 27 to June 4, 4 deaths; Calcutta, May 13 to 20, 1 death.
Mexico: Mexico, June 3 to 25, 25 cases, 16 deaths.
Russia: Moscow, June 3 to 10, 11 cases, 11 deaths; Odessa, June 10 to 17, 7 cases, 1 death; St. Petersburg, June 3 to 17, 26 cases, 12 deaths; Warsaw, June 3 to 10, 1 death.
Scotland: Glasgow, June 10 to 17, 1 death.
Straits Settlements: Singapore, April 1 to 30, 13 deaths.
Turkey: Smyrna, June 11 to 18, 8 deaths.

YELLOW FEVER.

Africa: Grand Bassa, Ivory Coast, reported present.
Brazil: Bahia, June 3 to 17, 70 cases, 36 deaths; Rio de Janeiro, May 19 to 26, 10 deaths.
Colombia: Panama, June 16 to 23, 3 cases, 3 deaths.
Cuba: Havana, June 15, 6 cases, 1 death; Matanzas, June 17 to 24, 1 case doubtful; Santiago, July 3, 100 cases, 20 deaths, principally among troops.
Mexico: Cardoba, June 21, 23 cases, 14 deaths; Merida, July 1, case; Mexico, June 3 to 25, 2 deaths; Vera Cruz, June 22 to 29, 35 deaths.
San Salvador: San Salvador, June 30, reported present.

CHOLERA.

India: Calcutta, May 13 to 27, 46 deaths; Kurrachee, May 10 to 17, 29 cases.

PLAGUE.

China: Hongkong, May 6 to 27, 319 cases, 89 deaths.
Egypt: Alexandria, June 16 to date, 33 cases, 10 deaths.
India: Bombay, May 30 to June 6, 66 deaths; Calcutta, May 13 to 27, 10 cases; Kurrachee, May 14 to 16, 10 cases; Mauritius, May 4 to 22, 5 deaths.
On Japanese steamship *Nippon Maru*, from Hongkong, and Japanese ports, for San Francisco, May 20, 1 death.

CHANGE OF ADDRESS.

Brown, P. W., from Atlar to Fish Hook, Ill.
Beatty, R. C., from 6227 to 6200 Penn Ave, Pittsburg, Pa.
Bacon, J. E., from Waukesha, Wis., to Enid, Oklahoma Territory.
Bradley, H. M., from Riverside Hospital to 400 W. 57th, New York City.
Chase, O. E., from Ann Arbor to Traverse City, Mich.
Corbusier, H. D., from Ann Arbor, Mich. to 154 Washington St., Elmira, N. Y.
Cross, E. D., from 3141 Indiana to 3142 Prairie Ave, Chicago.
Clark, S., from Belton, Mo. to Ehren, Ala.
Conrad, George, from 347 S. Main St. to Univ. Hospt., Ann Arbor, Mich.
Cunningham, from 1285 to 1271 Van Buren St., Chicago.
Clarke, J. T., from 411 Michigan to 503 Vance St., Toledo, Ohio.
DuBell, A. K., from Philadelphia, Pa. to Columbus, N. J.
Dittemore, J. H., from Troy to Axtell, Kans.
Flynn, J. C., from Philadelphia to Box 95, Salem, N. J.
Frank, L., from 1929 Deming Court to 101 S. Clark St., Chicago.
Griffin, O. A., from Ann Arbor, Mich. to Fayette, Ohio.
Hawley, E. R., from 3614 Lake Ave. to The Lorraine, 36th and Ellis Ave., Chicago.
Henly, G., from Ann Arbor, Mich. to Fairmount, Ind.
Hardy, J. J., from Witteville to Cavanal, Indian Territory.
Hitt, A. W., from 95 E. 51st to 177 E. Lake St., Chicago.
Hunt, F., from Lexington Hotel to 100 State St., Chicago.
Holloday, F. S., from Detroit to Club House, Les Cheneaux Islands, Mich.
Hering, E. R., from Cross Plains to Manawa, Wis.
Lewis, E. R., from Box 255 to Commerce Building, Kansas City, Mo.
Litvin, A., from 291 W. 14th St, to 350 E. North Ave., Chicago.
Mitchell, J. M., from Pontiac to 697 Jackson Boulevard, Chicago.
Merness, H. D., from Thompson to Sac City, Iowa.
Nichols, C. M., from Philadelphia to Delaware Water Gap, Pa.
Norris, R. W., from Philadelphia to Eleanor, Pa.
Owen, D. W. C., from 3864 Park to 1508 S. Vandeventer, St. Louis, Mo.
Randolph, A. G., from Monroe St. Hospt. to 329 W. Van Buren St., Chicago.
Richmond, W. B., from Ann Arbor, Mich. to Mt. Pleasant, Iowa.
Schmitt, G., from Chicago to 1206 Walnut St., Milwaukee, Wis.
Sapp, C. E., from Mt. Vernon to South Omaha, Neb.
Shannon, L. W., from 715 Harrison to 298 Maxwell St., Chicago.
Stephen, J. P., from Kosciusko to Zilpha, Miss.
Smith, J. E., from 236 Winchester Ave. to 716 Congress St., Chicago.
Spencer, N. W., from Walnut, Iowa, to Montrose, S. D.
Thornton, J. W , from Earling, to Lansing, Iowa.
Wilson, A. L., from 1527 N. Illinois St. to 1520 N. Capitol Av., Indianapolis, Ind.
Wiley, H. H., from Detroit to Utica, Mich.
Wright, J. B., from Richmond, Va., to Coharie, N. C.